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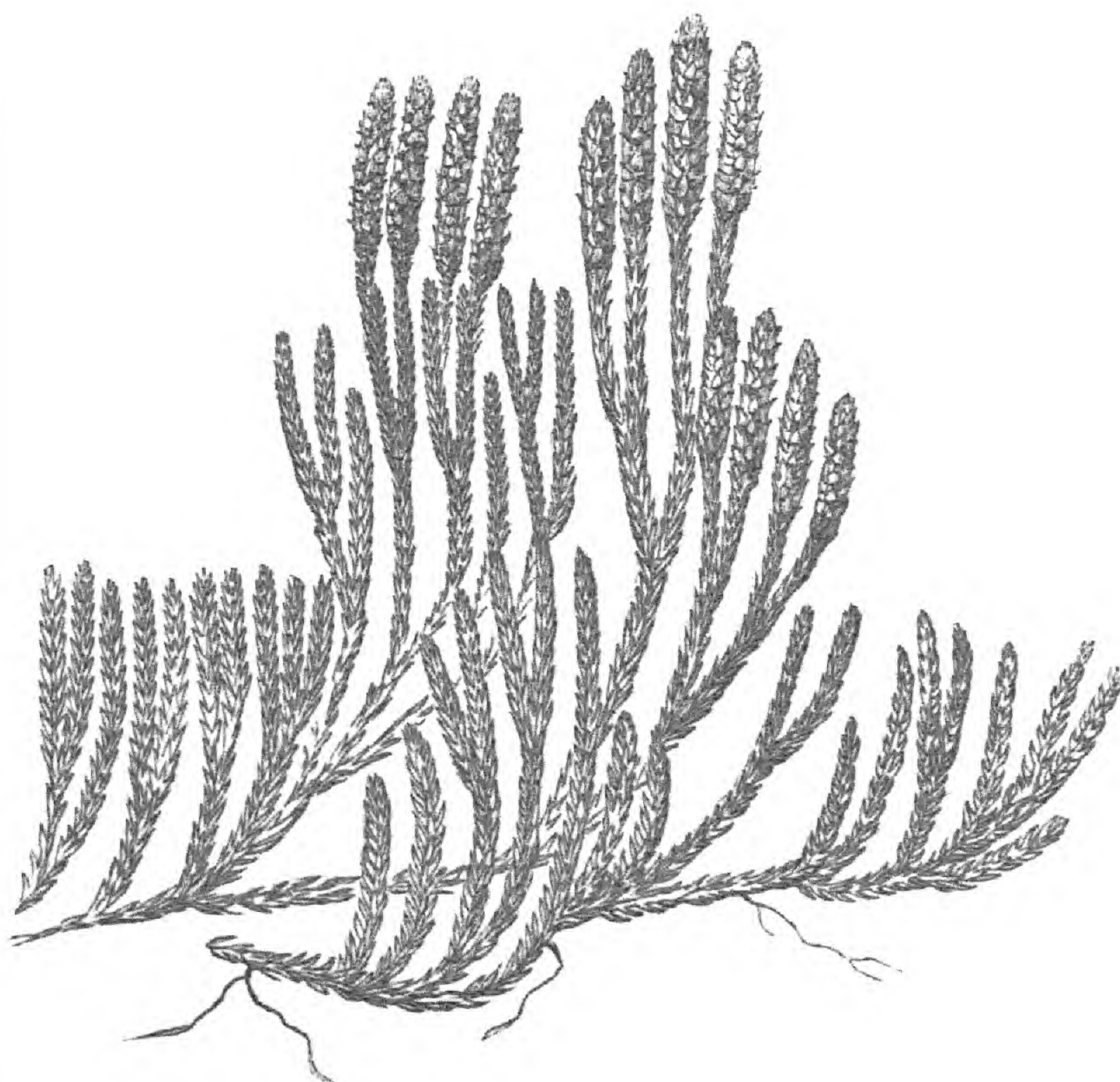
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SOCIETY

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Edited by A.M. Paul

THE BRITISH PTERIDOLOGICAL SOCIETY

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The **BRITISH PTERIDOLOGICAL SOCIETY** was founded in 1891 and is still a focus for fern enthusiasts, its wide membership including gardeners, nurserymen and botanists, both amateur and professional. It provides a wide range of information about ferns through its publications and website, and also organises indoor and field meetings, garden visits, a plant exchange, a spore exchange and fern book sales. The Society's journals, *The Fern Gazette*, *Pteridologist* and *Bulletin*, are published annually. *The Fern Gazette* publishes matter chiefly of specialist interest on international pteridology, the *Pteridologist*, topics of more general appeal, and the *Bulletin*, Society business and meetings reports. **Website:** www.eBPS.org.uk

Membership is open to all interested in ferns and lycophytes. **SUBSCRIPTION RATES** (due on 1st January each year) are Full Personal Members £25, Personal Members not receiving *The Fern Gazette* £21, Student Members £12.50, Subscribing Institutions £42. Family membership in any category is an additional £2.50. **Airmail** postage for all journals is an extra £10, or for those not receiving *The Fern Gazette* £5. Applications for membership should be sent to the Membership Secretary (address above) from whom further details can be obtained. **Standing Order** forms are available from the Membership Secretary and the BPS website.

(Front cover: *Diphasiastrum alpinum* (as *Lycopodium alpinum*). Illustration from: E. Newman (1844) *A history of British ferns and allied plants*.)

Back numbers of *The Fern Gazette*, *Pteridologist* and *Bulletin* are available for purchase from P.J. Acock, 13 Star Lane, St Mary Cray, Kent BR5 3LJ; E-mail: BackNumbers@eBPS.org.uk

NATIONAL FIELD MEETINGS

LA PALMA, CANARY ISLANDS – 10-17 January

(Participants: Neil Armstrong, Shaun Barton, Peter Blake, Bob & Diana Brown, Roland Ennos, Alison & Chris Evans, Yvonne Golding (Leader), Nick Lodge, Tim Pyner, Gill & Michael Radley, Paul Spracklin, Peter Taggart.)

Introduction to La Palma

Roland Ennos

La Palma is the most north-westerly of the Canary Islands, lying in the Atlantic Ocean, four hundred kilometres off the North African coast, around 28 degrees north and 17 degrees west. It is a pear-shaped mountainous island. The circular northern half consists of a large Miocene volcanic crater, Caldera de Taburiente, whose rim rises to a height of almost 2,500 metres. In contrast, the south of the island has been formed by a line of more recent volcanoes, which run along a central ridge to the pointed southern tip and which have covered much of the area with cinder cones and lava fields. Its climate, and hence its vegetation, is basically Mediterranean but is heavily influenced by its geographical position and mountainous nature. The surrounding Atlantic prevents extremes of heat, keeping the islands at a pleasant daytime temperature of 20°C in winter and 25°C in summer. The north-east trade winds also bring moisture from the sea, and as they are forced to rise by the mountains form a wet cloudy zone from about 800 to 1,500 metres along the north and east of the island. The south and west, in contrast, lie in the rain shadow of the mountains and are sunnier and much drier.

As a result of this the island has extremely varied vegetation; it can be separated into a number of contrasting ecological zones, each of which has a unique flora with many endemic plant species. The wetter slopes of the north and east are home to laurel forest, the last relict of a Tertiary flora that used to cover Southern Europe and North Africa and is now the haunt of woodland ferns. In contrast the drier lower regions and the south and west house a xerophytic community composed mostly of stem and leaf succulents; species of *Euphorbia*, *Aeonium* and composites predominate, with xerophytic ferns being common in the lava flows. Above the laurel forests up to a height of 2,000

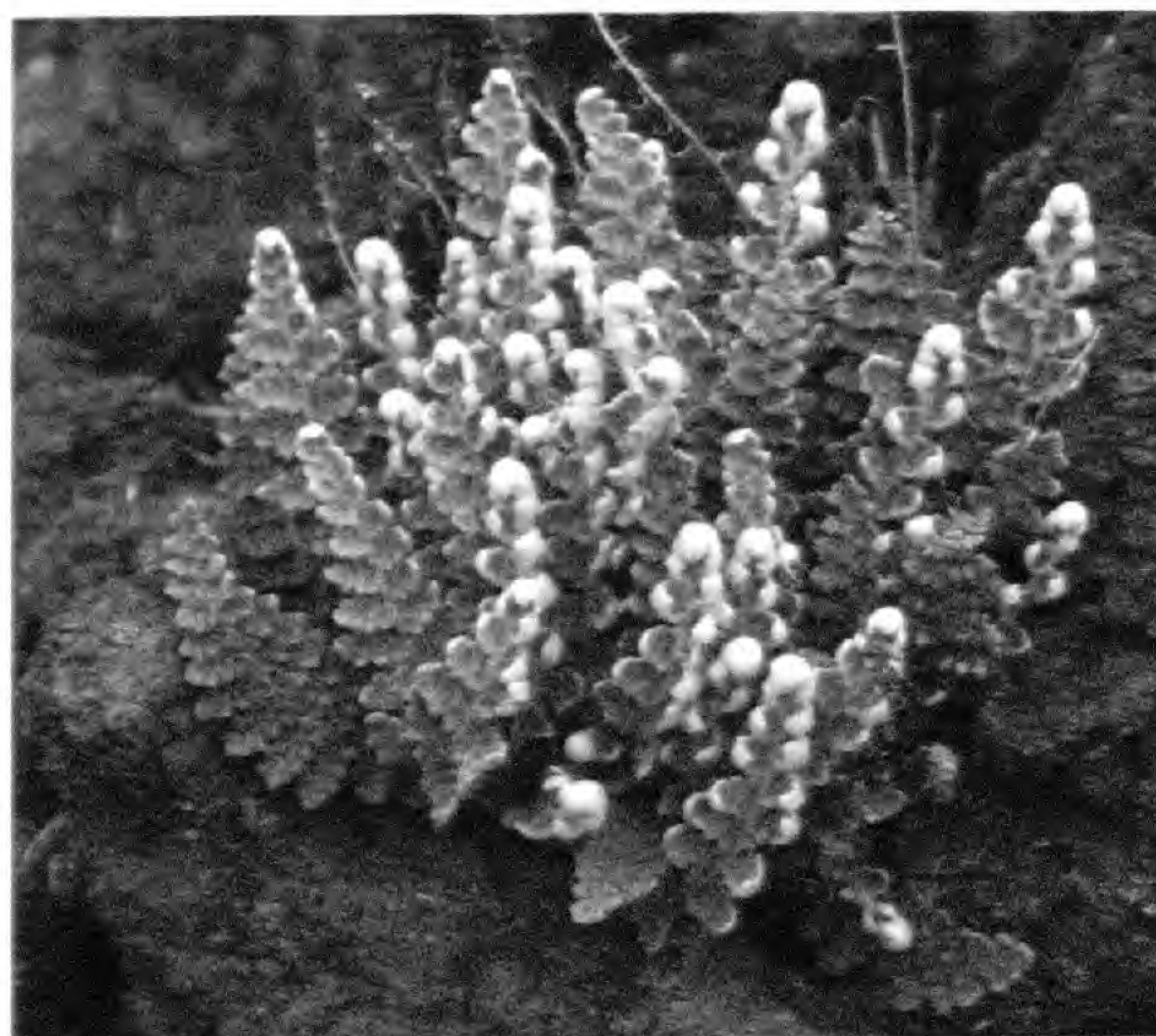


photo: A.J. Evans

The xeric fern *Cosentinia vellea* at
Monte de Luna

metres drought-tolerant Canary pines dominate, trapping water from the clouds on their long needles. This gives way to shrubby subalpine vegetation only on the highest slopes.

Friday 10th – Arrival

Yvonne Golding

Roland and I had been in La Palma for a week before welcoming the main party on 10th January. We spent much of the time reconnoitring old sites and finding some new ones. The ferning began on arrival in the foyer of our excellent hotel Hacienda San Jorge and continued in the orchid bar. Drapes of *Nephrolepis exaltata* and *Goniophlebium subauriculatum* with hanging baskets of *Microsorium scolopendria* plus a ten-foot-tall tawny-scaled *Cyathea* indicated that you had



photo courtesy: Y.C. Golding

Hotel foyer in La Palma

Yvonne Golding, Neil Armstrong, Roland Ennos, Tim Pyner, Alison & Chris Evans, Bob & Diana Brown, Nick Lodge, Peter Blake, Michael Radley, Paul Spracklin, Gill Radley, Peter Taggart, Shaun Barton

come to the best hotel on the island. The Hacienda sat in a palm garden planted with around 60 species from around the world as well as many specimens of the native *Phoenix canariensis*. In amongst the palms were many fine specimens of *Cyrtomium falcatum* and the damp volcanic walls around the pool were covered in *Adiantum capillus-veneris*.

On our first evening we celebrated Roland's birthday with a meal together at Hacienda.

Saturday 11th – Cubo de la Galga (a.m.)

Alison Evans

We gathered at the car park at Cubo de la Galga, and while we were waiting for everyone to arrive we had a short diversion along the old road to see a magnificent plant of *Canarina canariensis* with deep orange flowers, noting *Davallia canariensis* along the way. Returning to the barranco, we admired a huge colony of *Adiantum reniforme* mixed in with *Selaginella denticulata* growing on the wall of the gorge, and then made our way slowly up the track noting the 'regular' ferns of the Laurisilva forest as we went. The *Dryopteris oligodonta* was looking lovely, with its large, newly flushed apple-green fronds. We looked at plenty of smaller plants in the hope of finding a new *Dryopteris* record for the island, but they were all *D. oligodonta*. There was a lone plant of *Christella dentata* (now *Cyclosorus dentatus*) by the side of the track – perhaps an introduction on the boot of a pteridologist in previous years? As the steep side of the barranco became wetter we started to see *Adiantum capillus-veneris*, *A. raddianum*, large stands of *Diplazium caudatum*, and *Woodwardia radicans* cascading down the hillside. The track is high above the barranco floor in places, with a vertiginous and very ferny view down to the bottom, but as the road climbs gently the barranco floor rises more steeply, so that eventually the two are level. In the barranco we saw some huge plants of *Asplenium hemionitis*, very impressive, but perhaps not as photogenic as some perfect smaller plants we saw by the side of the path. We met some walkers from Ireland who were also taking pictures and who asked us for the name of the lovely fern they had just photographed. We also saw some very fine plants of *Asplenium onopteris* and a few plants of *Polystichum setiferum*.

We stopped for lunch in a clearing at Cubo de la Galga, and Tim Pyner explained to us how to distinguish the different species of laurels. A few of us fought our way through the brambles to see the waterfall, but it was only a trickle, and too overgrown for a good view. We retraced our steps a little way and took a turn to the right up to an old stone arch in the middle of a glade of shoulder-high *Diplazium*. The fern we were looking for was difficult to spot at first, but then we found an extensive colony of *Trichomanes speciosum* (now *Vandenboschia speciosa*) under the *Diplazium*, with some very photogenic fronds but none fertile as far as we could see. Mission accomplished, we walked back down to the cars.



photo: Y.C. Golding

Cubo de la Galga

Roland Ennos among *Diplazium caudatum*

San Andres

Michael Radley

We made our way to the local town of San Andres for refreshments. From the café we could see many ferns growing out of the walls and even non-native ferns growing out of a roof drainpipe. A brief visit was made to the church to admire their impressive nativity scene – over 15 feet high and set within a lava rock backdrop covered in local flora.

We then walked down a steep road leading to the coastal path, past many houses sporting collections of potted plants that included ferns, mostly *Nephrolepis*, and orchids. The seafront was deserted; there were well-maintained but empty car parks and an abandoned garden with an empty eroding swimming pool. A small derelict landing stage was incorporated into a wild garden perched on the rocky edge of the Atlantic, with a raised walkway linking to a panicle lookout point, but all had seen better days. The dullness of the dark grey volcanic rock was punctuated with flora, including ferns such as *Cyrtomium*, probably *C. falcatum*, growing from the cliff retaining walls, tolerant of sea spray. As a reminder of the place's past, stood what looked like a preserved kiln, though the harder mortar stood proud where the interior's soft red bricks had been eroded by the weather. A few ferns grew within the structure.

Sunday 12th – Monte de Luna

a.m.

Peter Blake

The group travelled down to the tiny village of Monte de Luna in the south-east of the island. After a steep walk uphill between small houses and a stony vineyard where *Anogramma leptophylla* was seen in a roadside wall, we reached the edge of the lava field where there was a marked and well maintained footpath. This led through areas that had suffered forest fires at various times so the vegetation was quite variable over just a mile or two, being open lava field in some places, pinewood in others and quite lush re-growth where forest fires had been recent. *Davallia canariensis* and *Pteridium aquilinum* were common but there was a good representation of xeric ferns also. *Notholaena marantae* subsp. *subcordata* (now *Paragymnopteris marantae*) was the commonest of all the ferns but large numbers of *Cosentinia vellea* and *Polypodium macaronesicum* were also seen. Less common were *Cheilanthes guanchica* (now *Allosorus guanchicus*), *Asplenium octoploideum* and *A. filare* subsp. *canariense*. After a small colony of *Ophioglossum lusitanicum* was found and members 'got their eye in' for this tiny fern, several colonies were seen at the sides of the footpath.

p.m.

Tim Pyner

After lunch the group continued walking along the track until it intersected with a rocky gully. A slight change in habitat indicated by large patches of *Polypodium macaronesicum*

spreading between loose rocks invited further exploration. Almost immediately upon leaving the track two superb specimens of *Asplenium aureum* were found sheltering beneath a small shrub. Further searching revealed several more plants of this most attractive fern. More plants were found of the equally attractive *A. filare* subsp. *canariense*. This is an apogamous member of the widespread *A. aethiopicum* complex. The main party returned along the track to the parked cars but a small sub-group carried on down the gully to the road. *A. filare* was frequent in places on the rocky sides along with occasional *A. octoploideum* and few small *A. aureum*. In one small area several *A. trichomanes* subsp. *quadrivalens* were seen in shaded crevices. Well grown plants of *Cosentinia vellea* were frequent. Of the two subspecies that have been recorded on La Palma only the diploid subsp. *bivalens*, confirmed by spore measurements, was found during the trip.

Monte Brena

Yvonne Golding

Our final stop at Monte Brena (565 metres) provided a very prominent viewpoint over the east coast of the island. The hill is covered with Canary pine and proved not to be particularly ferny, mostly bracken (*Pteridium aquilinum*) and, along walls, *Davallia canariensis*, *Polypodium macaronesicum* and, surprisingly, *Asplenium hemionitis*. The botanical star, however, was a large stand of *Dracunculus canariensis*.

Monday 13th – Los Tilos – walking in a valley of giants

Paul Spracklin



photo: Y.C. Golding

Los Tilos

Neil Armstrong, Peter Taggart, Roland Ennos, Tim Pyner, Diana Brown, Chris Evans, Bob Brown, Peter Blake, Shaun Barton, Nick Lodge, Paul Spracklin, Alison Evans, Gill & Michael Radley

hugged the wall of the barranco. Immediately it became apparent that we were entering a special place, a primitive 'lost world' filled with plants that would have been typical of much of the Mediterranean basin before the last ice age. The almost oppressively vertical rock-face dripped with moisture, ferns and other engagingly cute vegetation whilst towering evergreens along the edges of the barranco itself reached for the sky and filtered the sun. Now and then views across the gorge opened up, only to be quickly swallowed once again by the dense vegetation.

Most of the ferns we encountered we had seen on Saturday, though they were perhaps more artistically displayed within this dramatic setting. Non-pteridophytes of particular interest to some of our number included the mountain queen, *Ixanthus viscosus*, the Canary madrona, *Arbutus canariensis* and, rarely seen in the wild, the honey spurge *Euphorbia mellifera*. But

Monday saw us headed into the UNESCO Biosphere to the north-east of the island once again, this time into the area known as Los Tilos – named after the Til tree, *Ocotea foetens*, which is one of the major constituents of the Laurisilva forest. Alighting from our cars, the crisp, cool humid air contrasted starkly with the warmth of Los Cancajos that we had left behind just thirty minutes earlier. Once assembled, we started our steady ascent up the wide, well-surfaced track – never steep but always relentless – that

the most interesting thing of note was the sheer size and luxuriance of growth in this sheltered ravine. In one small and particularly protected gully leading off to one side we encountered *Adiantum reniforme* with fronds seven centimetres across, *Diplazium caudatum* over two metres high and *Woodwardia radicans* with three-metre-fronds dangling from the rock-face. A veritable valley of giants.

The base of a mirador proved to be a convenient place to demolish our packed lunches (hands up who didn't have ham and cheese? Aha – not many hands.) Those brave souls who risked the mirador were treated to a 'walking-the-plank' experience along a narrow flattened rock jutting out above the vegetation with marvellous views of the gorge. [There was also another chance to see many fine clumps of my favourite Canary fern, *Asplenium filare* subsp. *canariensis*. YG]



photo: Y.C. Golding

Los Tilos

Asplenium filare subsp. *canariense*

After lunch we continued further into the forest to reach the spectacular Barranco del Agua. Some sensible ferners watched us from the picturesque bridge as we gingerly descended a vertical ladder. Apart from the exciting experience, all this was to see one plant of *Pteris incompleta* high up on the gorge side, identified with binoculars. [The main reward, however, proved to be the fantastic stand of *Trichomanes speciosum* on the banks of the barranco. YG]

When we were all done it was time to retrace our steps – mercifully downhill enabling tired tendons to ease slightly – until, blinking in the sunlight, we came out where we had parked our cars. A short stroll away, past a 20-foot high wall dripping with *Adiantum capillus-veneris*, *A. raddianum* and *Cystopteris diaphana*, we took advantage of a small café – Casa Demetris – for a beer and a de-brief, accompanied by rather loud local music and chaffinches. And so ended another marvellous day out in 'La Isla Bonita'.

Tuesday 14th – El Paso Visitor Centre & Barranco de las Angustias

Bob Brown & Yvonne Golding

Setting out from Santa Cruz on the LP2, we stopped at the entrance to the westbound Cumbre Nueva tunnel and walked up a forestry track. The geology of the site consisted of volcanic ash and lava with well drained acid soils (average annual rainfall about 900 millimetres). The vegetation consisted of cloud forest dominated by *Laurus azorica*, *Persea indica*, *Erica arborea* and *Pinus canariensis*. There were shrubs of *Viburnum rigidum* with a ground layer including *Geranium canariense*, *Gennaria diphylla*, *Aichryson* and introduced species including *Bidens pilosa*, *Ageratina adenophora* and one observed plant of *Erigeron karvinskianus*. We encountered all the main ferns of the laurel forest, with particularly fine *Asplenium onopteris*. Our aim was to reach the verdant stand of *A. monanthes* on a bank up a gully off the main track.

Our next stop was the Visitor Centre near El Paso, which had some good interpretation about the island's geology, flora and fauna, and culture. There was also a rather neglected botanic garden; this was still worth visiting as there were some good examples of Canary endemics, including the main laurel trees.

Across the road we explored a lava field from the eruption of 1949. This was composed of intact lava and clinker, presumed acid, with slight accumulations of reddish ash-like soils in hollows (average annual rainfall about 650 millimetres). Rocks were largely colonised by lichens and abundant xeric ferns, which together with *Rumex*, *Aeonium* and *Sonchus* are the pioneer plants. Our main purpose here was to identify the rustyback ferns, some of which were unusually large. Tim Pyner subsequently measured spores and confirmed all of these

as *Asplenium octoploideum*. Shaun Barton found two plants of *A. trichomanes* subsp. *quadrivalens*, which surprisingly is not common in La Palma!

From here some of us continued through Los Llanos, turning north to reach Barranco de las Angustias (242 metres). The geology comprised massive deposits of moderately compacted alluvial rubble consisting of lava, ash and basement metamorphic rocks (average annual rainfall about 400 millimetres). The pH was likely to be higher than on purely laval soils. Might this account for the dominant *Cheilanthes* being *C. maderensis* (now *Allosorus pteridioides*) at this site? Other notable ferns included large colonies of *Pteris vittata* and our only site for *Equisetum ramosissimum*. Also of note were fine *Aeonium nobile*, which seemed to be hybridising with other species.

Thursday 16th – La Tosca, Barlovento; Barranco de Gallegos; Roque de Los Muchachos Observatory

Tim Pyner

Following our free day, Thursday involved some longer journeys with a variety of habitats to explore. Firstly, we had an hour-long drive to Barlovento on the north-east coast to see a population of dragon trees (*Dracaena draco*) at La Tosca. These ancient trees grow in a rocky valley and some are several centuries old, with wide-spreading crowns arising from a single, massive trunk. These old natural populations are rare and regeneration is at best sporadic but they are an iconic symbol of the island. A small track led us down to the trees with nearby dry-stone walls hosting the common *Davallia canariensis* and *Polypodium macaronesicum*. Near the dragon trees another path branched off and somewhat surprisingly a nice population of *Asplenium hemionitis* was seen, with many plants growing on the north-facing walls. Usually this fern is restricted to Laurisilva habitats. Fortunately, recent strimming activity had not affected the *A. hemionitis* but a few plants of *Christella dentata* (*Cyclosorus dentatus*) had lost most of their fronds.

After stopping for lunch along the twisting LP109 road at Fuerte las Mimbreras, drizzly rain set in and by the time we got to our next site, Barranco de Gallegos, it was quite heavy. This Barranco, set in a high-sided, forested gorge, held good quantities of several common ferns such as *Woodwardia radicans*, *Diplazium caudatum* and *Dryopteris oligodonta*. More notably Alison found a single plant of *Pteris incompleta*, one of only two seen all week. Peter Blake also spotted a single plant of the *Asplenium ceterach* complex on a wall near the road. It was too poorly developed to be certain of its identity but was probably *A. aureum*. Nice colonies of *Adiantum reniforme*, *Cystopteris diaphana* and *Anogramma leptophylla* were also present. A small group of adventurous pteridologists climbed a rickety ladder that went over a water management dam and found a nice *Polystichum setiferum* and superb colonies of *Adiantum capillus-veneris*. Also of interest in the Barranco were several mature and young plants of the attractive and extremely rare endemic shrub, *Bencomia exstipulata*. By the time we returned to the cars the rain had eased and the sun was shining as we set out on the long drive to the highest point on La Palma, Roque de Los Muchachos at 2,426 metres.

After we joined the LP113 the road became more tortuous as we gained altitude. Driving through pine forest we soon reached the cloud base and as we emerged from the forest patches of snow started to appear. We passed the famous observatory and reached the car park at the Roque. The snow was now lying quite thickly on the sparsely vegetated volcanic landscape and the car temperature gauge was reading zero. It was difficult to believe that less than an hour's drive away we could be sitting in warm sunshine. The wind was bitter and blasts of ice crystals gnawed at our faces. Despite the discomfort new ferns were promised and duly found: a small plant of *Asplenium septentrionale* in a vertical crevice and a nice plant of the *Cystopteris fragilis* aggregate under an overhanging rock, unfortunately with immature spores so the species remains unconfirmed. Despite much searching only these two plants were found and the happy ferners were pleased to depart for the warmth of the lowlands.

Friday 17th – Return home

Yvonne Golding

I would say that the trip was a resounding success and all participants enjoyed the week, many vowing to return to La Palma. We saw 32 species growing in the wild, many of which are unique to Macaronesia. Many thanks to all the participants, and especially to Alison

Evans who put together our species/site list and to Tim Pyner who helped a great deal with plant identification, and not just ferns!

Ferns seen in La Palma, Canary Islands, January 2014

Taxa in italics are naturalised; species groups and up-to-date names in brackets.

	11th	12th	13th	14th			16th			
	La Galga	Monte de Luna	Los Tilos	Near east entrance of Cumbre Nueva tunnel	By El Paso Visitor Centre	Barranco de las Angustias	La Tosca	Las Mimbreras	Barranco de Gallegos	Roque Observatory
<i>Adiantum capillus-veneris</i>	+		+			+			+	
<i>A. raddianum</i>	+		+							
<i>A. reniforme</i>	+		+						+	
<i>Anogramma leptophylla</i>	+	+	+						+	
<i>Asplenium aureum</i> (<i>A. ceterach</i> group)		+							?	
<i>A. filare</i> subsp. <i>canariense</i> (<i>A. aethiopicum</i> group)		+	+							
<i>A. hemionitis</i>	+		+				+			
<i>A. monanthes</i>				+						
<i>A. octoploideum</i> (<i>A. ceterach</i> group)		+			+					
<i>A. onopteris</i>	+	+	+	+			+	+		
<i>A. septentrionale</i>										+
<i>A. trichomanes</i> subsp. <i>quadrivalens</i>		+			+					
<i>Cheilanthes guanchica</i> (= <i>Allosorus guanchicus</i>)		+			+	+				
<i>C. maderensis</i> (= <i>Allosorus pteridioides</i>)						+				
<i>Christella dentata</i> (= <i>Cyclosorus dentatus</i>)	+						+			
<i>Cosentinia vellea</i> subsp. <i>bivalens</i>		+			+	+				
<i>Cystopteris diaphana</i>			+	+					+	
<i>C. dickieana</i> ? (<i>C. fragilis</i> group)										+
<i>Davallia canariensis</i>	+	+	+	+	+		+	+	+	
<i>Diplazium caudatum</i>	+		+	+				+	+	
<i>Dryopteris oligodonta</i>	+		+	+				+	+	
<i>Equisetum ramosissimum</i>						+				
<i>Notholaena marantae</i> subsp. <i>subcordata</i> (= <i>Paragymnopteris marantae</i>)		+			+	+				
<i>Ophioglossum lusitanicum</i>		+								
<i>Polypodium macaronesicum</i>	+	+	+		+		+	+	+	
<i>Polystichum setiferum</i>	+		+	+					+	
<i>Pteridium aquilinum</i>	+	+	+	+	+		+	+	+	
<i>Pteris incompleta</i>			+						+	
<i>P. vittata</i>						+				
<i>Selaginella denticulata</i>	+		+	+			+	+	+	
<i>Trichomanes speciosum</i> (= <i>Vandenboschia speciosa</i>)	+		+							
<i>Woodwardia radicans</i>	+		+	+					+	

CAPO DI PONTE, NORTHERN ITALY – 19-25 May

(Leaders: Enzo Bona & Paul Ripley)

Monday 19th – Capo di Ponte; Cervenno; Cemmo (Le Calderu)

Alison Evans

We met outside the Graffiti Park Hotel in Capo di Ponte (46°01'34.5"N, 10°20'52.5"E) at 8.30 a.m. in bright sunshine, and set off on foot to the eastern side of the valley, noting *Asplenium ruta-muraria* on the cemetery wall. We turned northwards on a track and when we had gained a little height we had a good view across the Oglio valley to the Concarena mountain ridge. Enzo explained to us that the climate of the Northern Alps meets that of the Southern Alps in the Valcamonica area, and we were also crossing from 'African' rocks to 'European' rocks, hence the botanical richness of the area. We saw some familiar ferns, including *Cystopteris fragilis*, *Polypodium vulgare* and *Polystichum aculeatum*, and we also noted that the *Dryopteris cambrensis* there is broader and rather less 'crimped' than typical UK plants.

Some of us followed Enzo up a very steep scree slope, where we found large patches of *Asplenium septentrionale* growing with several lovely clumps of *A. × alternifolium*, the highlight of the morning. *A. trichomanes* subsp. *quadrivalens* was also there in quantity, plus a small plant of *A. adiantum-nigrum*. Amongst the rocks at the base of the scree was a huge plant that had so far defied identification – a member of the *Dryopteris affinis* complex, it might be a hybrid such as *D. × convoluta* but the sori were not mature enough to check the spores, so we could only speculate. We added *Dryopteris dilatata* and *D. carthusiana* to the list, then, after seeing a stand of *Platanthera bifolia*, we headed back towards town by way of a wooded area



photo: A.J. Evans

Asplenium × alternifolium at Capo di Ponte

and a road with a stand of *Phegopteris connectilis*. On the roadside by the railway was a large stand of *Equisetum arvense*, with another horsetail growing through it that had defied identification in the past. The branching of this horsetail was very variable, with some thin spikes and some being much more robust. Wim collected some for further study and concluded that they fit with *E. ramosissimum*, although a previous chromosome count suggests that they are triploid, and a possible hybrid with *E. hyemale* has been suggested.

At 12 noon we gathered at the information centre for Graffiti Park and the protected natural area of Valcamonica, where we were given a short talk and written information in English about the area. We then had a full Italian lunch at the hotel and a short siesta before setting off again by car to the village of Cervenno (46°00'05.6"N, 10°19'38.4"E). We visited the Sanctuary of the Via Crucis and marvelled at the set of life-size painted wooden carvings by Beniamino Simoni and the Fantoni brothers, portraying each of the Stations of the Cross. Enzo told us that the church had disapproved of Simoni's use of local people as models, so hired Selleroni to do the carving of the final scene – we agreed that this had nothing like the emotional power of the Simoni carvings. We then had a tour of the wall ferns of Cervenno – notably an *Asplenium trichomanes* that had been shown to be diploid so was presumably subsp. *trichomanes*, although it seemed to be growing on mortar, and two plants that appeared to be *A. trichomanes* subsp. *hastatum*.

A group of us then drove to the village of Cemmo to visit Le Calderu (46°01'37.9"N, 10°20'09.3"E), a little gorge that is a favourite of Enzo's. We were warned that the path is difficult in places but it was worth the effort when we arrived in a beautiful hidden valley with an impressive waterfall. The ground was quite wet, tempting out a fire salamander that

several people photographed. We also added *Adiantum capillus-veneris*, *Asplenium scolopendrium* and *Gymnocarpium robertianum* to our list for the day, plus a possible *Polypodium cambricum*. We also noticed an odd form of *Asplenium ruta-muraria* with elongated fronds on a large rock in the gorge.

Our learning about the Valcamonica area continued after dinner, when the Mayor of Capo di Ponte welcomed us and told us about the UNESCO World Heritage status of the area (in Italian, ably translated by Enzo). We all received a guide book for the Adamello Park, then Enzo gave a short presentation on the geology and flora of the area, followed by a beautifully illustrated presentation on the ferns of Valcamonica, whetting our appetites for the excellent 'ferning' to come.

Tuesday 20th – Lago Moro and its surroundings

John Edgington

On a sunny morning we drove some 25 kilometres down the valley to Gorzone, a village nestling under the splendidly-named Monte Altissimo. Our destination was Lago Moro, a small (17 hectares) lowland lake that has been closely monitored by Enzo to protect its bank vegetation. Parking by the parish church of San Ambrogio (45°53'19.56"N, 10°10'20.2"E), we passed *Asplenium*-clad walls and followed a track to a small but steep gorge lined with fresh fronds of *A. scolopendrium*. Crossing a small river, Fiume Dezzo, we met a range of woodland species including *Athyrium filix-femina* and *Phegopteris connectilis* as well as *Polystichum setiferum*, *P. aculeatum* and their hybrid *P. × bicknellii*. *Dryopteris cambrensis* was abundant and we identified *D. borrieri* with some confidence. *Selaginella helvetica*, distinguished from *S. denticulata* by bearing sporophylls on erect stems, grew on damp banks. Climbing out of the gorge we entered drier woodland dominated by chestnut *Castanea sativa*, sessile oak *Quercus petraea* and tree heath *Erica arborea*. Colourful flowers included orange lily *Lilium bulbiferum* with gorgeous blossoms, thin spikes of St Bernard's lily *Anthericum liliago*, the rampions *Phyteuma scheuchzeri* and *P. betonicifolium*, and twayblade *Neottia ovata*, while David spotted the helleborine *Cephalanthera damasonium* in deep shade. This different habitat was reflected by the appearance of *Asplenium adiantum-nigrum* and *Dryopteris filix-mas*. Both *Polypodium vulgare* and *P. interjectum* could be identified under the lens. A colony of very robust plants appeared to be their hybrid *P. × mantoniae*, but there were good spores and paraphyses in a specimen examined by Alison and Tim so it was *P. cambricum*.

Reaching a tarmac road, we followed it to the hamlet of Capo di Lago (45°52'54.6"N, 10°10'04.8"E) at the eastern end of Lago Moro. In front of us was a fine stand of *Thelypteris palustris*, the first of many colonies we saw. Continuing around the southern shore we found *Osmunda regalis*, a species that had been increasing here under Enzo's watch. The season was too early for fertile fronds on the *Thelypteris*, though a little further on we found a few plants of *Blechnum spicant* with both fertile and vegetative fronds. The presence of *Blechnum* indicated a change to acidic conditions, and we walked through a scrub of heather *Calluna vulgaris*, bilberry *Vaccinium myrtillus* and a striking yellow greenweed,



photo: A.J. Evans

Lago Moro

John Edgington, Tim Pyner & Wim de Winter looking at *Polystichum braunii*, with Grace Acock behind

Genista germanica. *Dryopteris dilatata* appeared, and another of our target ferns, *Polystichum braunii* – for many of us, the first we had seen in the wild. *Dryopteris borrieri* and *D. filix-mas* were abundant, and Alison found their hybrid *D. × critica* – a plant that Tim and I had seen recently in Essex.

After lunch we left the lake and took a higher track past flowery hay meadows and manicured lawns to the small village of Angolo. Paul Ripley's consternation at being wolf-whistled by a rabbit guarding one of these lawns was a highlight of my trip. An *Asplenium trichomanes* on a wall attracted much attention. Photographs and specimens suggest it was subsp. *hastatum* [to be confirmed]. While the rest of the group sat in a bar, the drivers walked three kilometres to Gorzone to collect the cars, passing along the road a wall clothed with *Adiantum capillus-veneris*. On the way home we visited the church of Santa Maria Assunta at Esine, to admire the magnificent frescoes painted between 1491 and 1493 and attributed to the school of Pietro da Cemmo. A splendid day.

Wednesday 21st a.m. – Acquebone

Bryan Smith

On another sunny day we began by driving 27 kilometres south to Artogne before heading a further five kilometres up a steep, twisty narrow road to Acquebone, a small hamlet at an altitude of 667 metres (45°50'18.6"N, 10°10'53.8"E). As was often the case this week, the hair-raising climb around hairpin bends was rewarded with spectacular views down the valley and across to surrounding snow-capped mountains (not for the drivers though, who were concentrating on the road!) Having parked the cars, we continued our ascent by foot along the road, and the banks revealed many of the ferns we had already seen on previous days – *Asplenium trichomanes* subsp. *quadrivalens*, *A. ruta-muraria*, *Athyrium filix-femina* (both red and green-stemmed), *Dryopteris cambrensis*, *D. filix-mas*, *D. carthusiana*, *D. dilatata*, *Equisetum arvense* and *Pteridium aquilinum*. However, the real treat was to see two distinct natural colonies of *Matteuccia struthiopteris*, a sight we never see in the UK.

Turning off the road at a farm, we descended through woodland, additionally seeing *Cystopteris fragilis*, *Gymnocarpium dryopteris*, *Oreopteris limbosperma*, *Phegopteris connectilis*, *Polypodium vulgare* and *Lycopodium clavatum*, before reaching a path alongside a boulder-strewn riverbed – the Valle di Artogne. Though the water flow was not exceptional, it was evident from the weirs and pipes that the water was being extracted for the local villages' water supply. However, another treat awaited us at this riverside location – several plants of the handsome *Dryopteris remota* – though it was also apparent that this particular fern was a favourite of the local deer population, and we were hard pressed to find plants with complete fronds. On exploring the area further we found good colonies of *Gymnocarpium dryopteris* and *Phegopteris connectilis*, before retracing our route back to the cars.

Wednesday 21st p.m. – Naquane National Park, Capo di Ponte

Bridget Laue

After lunch we went to the Naquane National Park, on the outskirts of Capo di Ponte. We recorded several species of ferns on our approach (see Table), but the real purpose of our visit was to see the ancient rock art that led to this region being declared a UNESCO World Heritage site in 1979. Permian sandstones, scraped smooth during the Pleistocene glaciation, were carved by local people starting perhaps about 6,000 years ago. This practice apparently declined

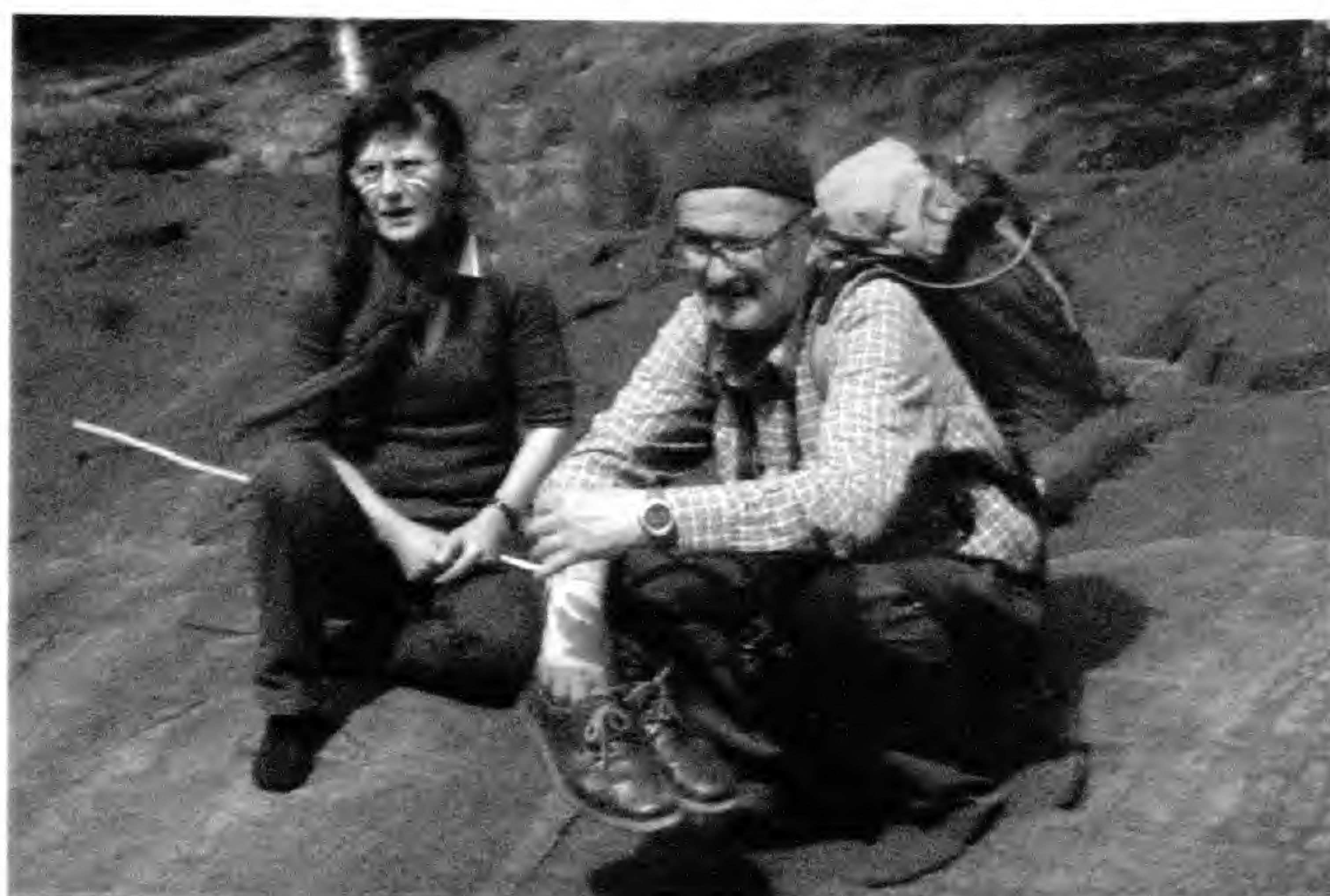


photo: P.H. Ripley

Liliana & Enzo Bona explain the rock carvings at Naquane

during Roman times, and the carved rocks became covered by vegetation before being rediscovered a little over a hundred years ago. The engravings feature various animals and hunting scenes, and have been used to interpret the lifestyle and spirituality of the local people in prehistoric times. All of this was expertly explained to us by Liliana Bona, who is a local guide, with translation by husband Enzo.

Later, we made our way across Capo di Ponte to the National Archaeological Park of Massi di Cemmo (46°01'52.4"N, 10°21'16.2"E), centred on two enormous boulders thought to have been carved in the third millennium B.C.

Thursday 22nd – Grumello (Lovenno) & Paisco

Tim Pyner

We started our morning excursion in Grumello, a little satellite of the small village of Lovenno (46°03'57.3"N, 10°15'17.1"E). Enzo had asked that the group be photographed at a fern-covered fountain in the village that was under threat of 'tidying up'. The fountain was housed in a small brick-lined arch that was covered with *Asplenium trichomanes* subsp. *quadrivalens* and *Cystopteris fragilis* forming, to us, a very attractive feature. Enzo hoped that a visit by a prestigious international group would bring a change of heart to those in charge of fern 'cleansing'.



photo: E. Bona

Fountain literally dripping with *Asplenium trichomanes*, at Crumello near Lovenno

Elise Knox-Thomas, Chris Evans, John Edgington, David Walkinshaw, Lindsey Holleworth, Avril Walkinshaw, Pat Acock, Dorothy Edgington, Wim de Winter, Enzo Bona, Grace Acock, Paul Ripley, Paul Sharp, Bridget Laue, Gill Smith, Tim Pyner, Alison Evans, Bryan Smith

Moving into the village centre, Enzo pointed out an odd-looking plant on a wall covered with *Asplenium ruta-muraria*. The fronds were elongated and narrow, however, hybridisation was eventually discounted as all other characters appeared to be consistent with those of normal wall rue. Passing the village church, a track led out into coniferous forest consisting of spruce (*Picea abies*) and larch (*Larix decidua*), where *Athyrium filix-femina*, *Dryopteris filix-mas* and *D. cambrensis* were abundant in clearings. Stopping at a recently felled area on a steep bank, Enzo pointed out a few plants of *Polystichum braunii*, its new, silvery-scaled fronds just unfurling. In a wet gully below were stands of *Matteuccia struthiopteris*.

As the path gradually descended we entered deciduous sycamore (*Acer pseudoplatanus*) woodland with scattered ash (*Fraxinus excelsior*) and hazel (*Corylus avellana*). Under the light, dappled shade a rich ground flora had developed, dominated by dusky cranesbill (*Geranium phaeum*). On banks alongside the track *Cystopteris fragilis* was frequent along

with *Polypodium vulgare*, often on stumps. *Phegopteris connectilis* and *Dryopteris dilatata* were now becoming more frequent and a few plants of *D. carthusiana* were also noted. Other attractive woodland herbs that distracted me were *Ranunculus aconitifolius*, *Viola biflora*, *Ornithogalum umbellatum*, *Saxifraga cuneifolia* and *Trollius europaeus*. By now the group had stretched out but we gathered together where the track met the road at a large waterfall. A few *Asplenium viride* grew here in cracks of a schist rock-face and *Polystichum aculeatum* was by the waterfall. As we walked back to the cars we had an opportunity to photograph a Camberwell Beauty butterfly that chose to rest on Chris' rucksack and then very obligingly transferred to Alison's hand.

After a picnic lunch we moved on to the village of Paisco (46°04'14.4"N, 10°17'04.2"E). We slowly walked along a shady lane with walls populated with very variable-looking *Asplenium trichomanes*. It was difficult to be sure whether more than one subspecies was present. *A. ruta-muraria* and *Cystopteris fragilis* were also frequent and Enzo's sharp eyes spotted a plant of *Asplenium septentrionale*. Reaching a small bridge over a fast-flowing stream we turned onto a rocky trail and started climbing upwards. *Polystichum braunii* started to appear more frequently along with *P. aculeatum*. Reaching a ridge we then descended into a steep-sided valley, a veritable ferny paradise. *Gymnocarpium dryopteris*, *Phegopteris connectilis*, *Dryopteris cambrensis*, *Matteuccia struthiopteris* and the two *Polystichum* species combining into a wonderful variety of cool green shades and textures. Reaching a small bank a few ferns stood out due to their size. At least one of these appeared to be exactly intermediate between *Polystichum aculeatum* and *P. braunii*. This was the hybrid *P. × luerksenii*, a large and very handsome plant. A few metres further on we reached a small waterfall where we saw *Gymnocarpium robertianum*, *Asplenium viride*, *Selaginella helvetica* and *Huperzia selago* on damp rock-faces. Retracing our steps I had by now learnt the characteristic 'jizz' of *Polystichum braunii* and spotted many more that I had overlooked previously. This completed another very satisfying day in a beautiful location.

Friday 23rd a.m. – Lago d'Iseo

Elise Knox-Thomas

After a night of spectacular thunderstorms and pounding rain, we awoke to a damp misty day. After the usual 7.30 breakfast, we headed south-west towards Lago d'Iseo, leaving the motorway and travelling through Lovere and Castro on the west side of the lake towards huge cliffs. The road had been carved out of solid rock, sometimes open to the sky but frequently interspersed with the awe-inspiring tunnels that are quite a feature in this part of Lombardy. Here and there stone was still being quarried by the side of this dangerous busy main road, while a low stone wall gave protection from a vertical drop only a road-width away. Northern Italy is so picturesque, even when it is man-made!

We parked in a roadside car park at Orrido del Bogn (45°46'38.5"N, 10°03'01.0"E) and started to walk back along a very dry grassy path between the tunnel wall and the water's edge. Large clumps of herbaceous plants grew in cracks in the sun-baked stone, notably *Campanula carnica* and *C. martini*, but we soon found *Asplenium trichomanes* and very shrivelled plants of *A. ceterach* growing where there was shade from young *Ostrya carpinifolia*. This tree, with its hop-like inflorescences, and *Quercus pubescens* form the region's native woodland. The path opened out to a large very dry open space, used by picnickers, as evidenced by the burnt-out remains of a lock-up café! We were entranced by the sight of brown crag martins wheeling over our heads as they went about their nest-building activities. We then walked through a tunnel to be awe-struck by the most amazing view of an inlet of the lake. We found *Asplenium trichomanes* subsp. *quadrivalens* growing on the cliffs, before skirting round another tunnel and coming across a tree-shaded damp high bank, piled against the towering cliffs. Although well populated by brambles and other herbaceous plants, strangely there were no ferns! However, to the right of this bank the shaded cliff was running with water and covered with *Adiantum capillus-veneris*.

Unbelievably, although there was no pavement, we then headed along the road. We definitely could have done with a triangular 'Beware surveying pteridologists' sign as we played tag with the traffic. However, we did find *Asplenium ruta-muraria* growing on the

cliff. *Pteris cretica* is very rare in this region but apparently there were two plants growing 15 metres up on a hidden shaded bank by a cleft in the sheer cliff, although they could not be seen from the road. Our leader Enzo, Wim de Winter and Paul Ripley climbed on top of a low wall protecting an under-road culvert and pushed their way through young trees and up the invisible bank, managing to see one of the plants. Where were our Society hard hats, crampons and ropes when we most needed them?

We made our way perilously back to the cars along the road and the lakeside path, and by noon we were heading away from the lake, through Erdine, Zorzino and Riva di Solto towards Lovere, before winding upwards through Sellere to a restaurant in an old watermill, Vecchio Mulino (45°52'25.6"N, 9°58'19.2"E), by a trout farm for lunch. Much to my delight I found reasonably good examples of *Equisetum telmateia* and *E. arvense* growing beside the restaurant car park, thus concluding the morning's ferning activity.

Friday 23rd p.m. – Presolana

David & Avril Walkinshaw

We left in cars for the short journey up the road to the Presolana Pass near Castello in Colere commune (45°57'01.5"N, 10°05'38.9"E). We parked at the side of the road and walked a short distance to the mouth of the Presolana Valley, full of grey scree, on the left of the road. Our main objective was *Asplenium lepidum*, and we found the small population at the base of the calcareous cliffs on the left-hand side of the gully. Two of us were deterred from climbing to a higher specimen by the presence of a small asp (*Vipera aspis*) curled in the planned foothold. At the base of the same cliff, Paul R. decided, after careful study, that his new find was 'a good candidate for *Asplenium trichomanes* subsp. *pachyrachis*'. A high, shallow, vertical cave further up had a single specimen of *A. scolopendrium*. At the top of the valley, on the left, were *Cystopteris fragilis* and *Gymnocarpium robertianum*. *Asplenium ruta-muraria* was found only in rock fissures on the right-hand side of the valley. Flowering plants that attracted the eye in the Presolana valley included *Carex brachystachys* (very rare), *Viola dubyana*, *Acinos alpinus* and white *Cephalanthera*.

We gradually gathered at the base of the valley, where a small black scorpion was discovered when a stone was moved. Drivers went back uphill for the cars while the rest walked down to a café that was also a cycle museum, an apt venue with the Giro d'Italia starting during our visit. Tea and biscuits were served and the drivers joined us before we all returned to Capo di Ponte.

Saturday 24th – Adamello Park near Preda, & Val Savio-re-Isola

Pat Acock

We were able to drive to a car park not far from the snowline near Preda in the Adamello Park (46°11'04.0"N, 10°21'57.9"E), with stunning views of the town below and the pass through the Alps to Switzerland. I thought we were going to have to introduce a new branch of pteridology, namely vernal pteridology (the science of identifying ferns from their unfurling croziers). However, after a refreshing and exhilarating dash through an ice-cold mountain stream, we found that spring was a little further advanced here, and more and more fully open ferns came into view. Crossing a meadow, the heavy dew on the vegetation provided subjects for some very arty fern photographs, especially of *Phegopteris connectilis* and *Gymnocarpium dryopteris*. In the meadow were all those alpine flowers that most of us never see because they have long faded before we normally visit the region. We saw *Potentilla* sp., *Viola biflora*, *Pulsatilla alpina* and *P. vernalis*, and I was particularly taken with the *Alnus viridis* that Tim pointed out.

Leaving some of the group in a meadow to explore at that contour and photograph ferns, flowers and butterflies, the majority started the 300-metre climb. We were rewarded with *Lycopodium annotinum*, *Huperzia selago* and *Asplenium septentrionale* before reaching our goal on the mountain side – *Diphasiastrum complanatum*, a rare plant south of the Alps. Gemma, a botanist with Enzo, noted a different colony of *Diphasiastrum*, which Tim identified as *D. × issleri*. We retraced our steps to the meadow and had lunch with the rest of the party.

We were intending to go further around the mountain at this height but Enzo thought the ferns would be more advanced at the slightly lower altitude of Val Savio-re-Isola

(46°03'57.4"N, 10°24'28.9"). This proved to be a most congenial last site for our foray, having most of the region's ferns along a track that followed the contour of the hill and was clearly a favourite place for locals to walk on such a beautiful day. Highlights included *Matteuccia struthiopteris*, *Dryopteris cambrensis*, a 1.08-metre-tall *D. carthusiana*, *Polystichum lonchitis*, *P. aculeatum* and a large colony of *Botrychium lunaria*. A couple of us were stopped in our tracks by a colony of bracken that was uniform in height and shape, with the stipe bent at right angles so that the three pinnae (an apical one and one each side, all of similar shape and size) were horizontal. We believed this to be the form of *Pteridium aquilinum* variously called *P. aquilinum* morphotype or var. *latiusculum* or *P. aquilinum* subsp. *pinetorum*. (See J.A. Thompson, *Fern Gaz.* 18(3): 101-109 for a review of bracken.)



photo: A.J. Evans

Pteridium aquilinum subsp. *pinetorum* at Isola

We returned to the hotel where we were treated to a sumptuous ‘aperitivo’. Enzo and Liliana, our guests of honour, were presented with tokens of our gratitude for all they had done to make the trip such a delight. We also gave Paul Ripley a book and tee-shirt to remind him of Capo di Ponte in thanks for the sterling work he had done in planning and organising the trip. And then we had to take our seats and start eating all over again.

Ferns seen in Italy, May 2014

Start location	19th			20th		21st			22nd		23rd			24th	
	Capo di Ponte	Cerveno	Le Calderu (Cemmo)	Gorzone	Lago Moro	Acquebone	Naquane	Cemmo	Grumello (Lovenzo)	Paisco	Lago d'Iseo	Vecchio Mulino	Presolana	Adamello Park	Isola
<i>Adiantum capillus-veneris</i>			+		+						+				
<i>Asplenium adiantum-nigrum</i>	+		+	+	+		+								
<i>A. × alternifolium</i>	+														
<i>A. ceterach</i>		+	+	+				+			+				
<i>A. lepidum</i>													+		
<i>A. ruta-muraria</i>	+	+	+	+	+	+	+	+	+	+	+		+		+
<i>A. scolopendrium</i>			+	+									+		
<i>A. septentrionale</i>	+						+	+		+					
<i>A. trichomanes</i> agg.	+														
<i>A. trichomanes</i> subsp. <i>hastatum</i>		+			+								+		
<i>A. trichomanes</i> subsp. <i>pachyrachis</i>													+		
<i>A. trichomanes</i> subsp. <i>quadrivalens</i>		+	+	+	+	+	+	+	+	+	+		+	+	+
<i>A. trichomanes</i> subsp. <i>trichomanes</i>		?													
<i>A. viride</i>									+	+					
<i>Athyrium filix-femina</i>	+		+	+	+	+	+	+	+	+				+	+

	19th			20th		21st			22nd		23rd			24th	
Start location	Capo di Ponte	Cerveno	Le Calderu (Cemmo)	Gorzone	Lago Moro	Acquebone	Naquane	Cemmo	Grumello (Lovenno)	Paisco	Lago d'Iseo	Vecchio Mulino	Presolana	Adamello Park	Isola
<i>Blechnum spicant</i>					+										
<i>Botrychium lunaria</i>															+
<i>Cystopteris fragilis</i>	+	+	+	+		+	+		+	+			+	+	+
<i>Diphasiastrum complanatum</i>														+	
<i>D. × issleri</i>														+	
<i>Dryopteris borrieri</i>				+	+		+								+
<i>D. cambrensis</i>	+		+	+	+	+	+	+	+	+				+	+
<i>D. carthusiana</i>	+		+			+			+	+					+
<i>D. × convoluta</i>	?														
<i>D. × critica</i>					?										
<i>D. dilatata</i>	+		+		+	+			+	+				+	+
<i>D. filix-mas</i>	+		+	+	+	+	+	+	+	+				+	+
<i>D. remota</i>						+									
<i>Equisetum arvense</i>	+			+	+	+			+	+		+	+		+
<i>E. ramosissimum</i>	+														
<i>E. telmateia</i>												+			
<i>Gymnocarpium dryopteris</i>				+		+				+				+	+
<i>G. robertianum</i>			+							+			+		
<i>Huperzia selago</i>										+				+	
<i>Lycopodium annotinum</i>														+	
<i>L. clavatum</i>						+									
<i>Matteuccia struthiopteris</i>						+			+						+
<i>Oreopteris limbosperma</i>						+									
<i>Osmunda regalis</i>					+										
<i>Phegopteris connectilis</i>	+			+		+	+		+	+				+	+
<i>Polypodium cambricum</i>			?	+											
<i>P. interjectum</i>				+			+								
<i>P. vulgare</i>	+			+	+		+		+	+	?			?	+
<i>Polystichum aculeatum</i>	+		+	+					+	+					
<i>P. × bicknellii</i>				+											
<i>P. braunii</i>					+				+	+					
<i>P. lonchitis</i>															+
<i>P. × luerssenii</i>										+					
<i>P. setiferum</i>				+											
<i>Pteridium aquilinum</i>	+			+	+	+	+		+					+	+
<i>P. aquilinum</i> subsp. <i>pinetorum</i>															+
<i>Pteris cretica</i>											+				
<i>Selaginella helvetica</i>				+			+			+					+
<i>Thelypteris palustris</i>					+										

SOUTH WALES, CENTRE: BRECON – 27-29 June

(Leaders: Brian & Sue Dockerill)

Friday 27th – Red and Black Darrens, Herefordshire

Pat Acock

Around 20 of us met up for lunch at The Crown, Longtown and then moved on to Olchon Dingle to the east of the Black Mountains where we were joined by a few more members. Here Brian welcomed us to the meeting, giving a brief introduction to the weekend and this site in particular, and stressing the need to take care on the scree.

We then proceeded onto the Red Darren (32/294303). A steep grassed path through dense, thankfully uniformly short, bracken with the occasional stream bank covered in *Oreopteris limbosperma* led us to the foot of the scree. People rapidly fanned out, some tracking along the contours while others climbed first before following northwards. The scree was predominantly limestone (from the limestone layer that underpins the Jurassic red sandstone) and the ferns were typical of such a habitat, namely *Asplenium trichomanes* subsp. *quadrivalens*, *A. scolopendrium*, *A. adiantum-nigrum*, *Polystichum aculeatum*, *Polypodium interjectum*, *Cystopteris fragilis*, and large areas of splendid *Gymnocarpium robertianum*. We also saw *Dryopteris filix-mas* and *Athyrium filix-femina*.

Fortunately we did not need to go far downhill in order to head south onto the Black Darren. Between the two and on these lower slopes the bracken was simply stunning in its dominance. On the Black Darren (32/296297) we descended from a ridge before climbing onto the scree. This scree was not caused as I suspected by glaciation but, as Brian explained, by a major slip in recent times. Here we added to our list *Dryopteris dilatata* and *D. cambrensis*. Climbing above the scree and walking along the base of the cliff we failed to find the hoped-for *Asplenium viride*. Some of the party descended a little early and missed the rain but the slower party were caught in a sudden downpour.

Later, many of us met up in The George in Brecon for a meal together and to discuss the following days and fern news in general.

Saturday 28th – Troserch Woods, Llangennech, & Susan Lewis' garden, Ammanford, Carmarthenshire

Roger Golding



photo: B.D. Smith

Troserch Woods

Pat Acock, Roger Golding, Paul Ripley, Michael Radley, Alison Paul, Ashley Basil, Brian Dockerill, Karen Munyard, Sue Dockerill, Peter Tindley, Grace Acock; Barrie Stevenson & Jo Basil in background

We were joined for the morning by the vice-county recorders, Richard and Katherine Pryce. From the meeting place at Llangennech (22/557025) we walked past a utility sub-station, around which *Equisetum arvense* grew. A short walk took us to the start of the woods where we quickly picked up commoner species – *Pteridium aquilinum*, *Dryopteris filix-mas*, *D. affinis* (probably), *D. borrieri*, *D. dilatata*, *Blechnum spicant* and *Asplenium scolopendrium*, reflecting mainly acidic woodland with pockets of more base-rich soil. The geology is composed mostly of carbonaceous sedimentary rocks – slate and shale with some coal-bearing seams.

Further on we encountered *Polypodium interjectum*, *P. vulgare*, *Polystichum setiferum* and two distinct forms of *Dryopteris borrieri*. On rocky outcrops by the river were several clumps of *Dryopteris aemula* – one of the highlights of the day. After a stop for lunch at a conveniently placed thatched wooden shelter, we circled back by a different path. Here we found *Hymenophyllum tunbrigense* among rocks near the river, *Oreopteris limbosperma*, *Asplenium trichomanes* subsp. *quadrivalens* growing on the wall of an old building, and a possible candidate for *Dryopteris* × *critica* (*D. borrieri* × *D. filix-mas*) by the path.

In the afternoon we drove to Susan Lewis' house near Ammanford. Susan is a long-standing member of the BPS as well as a keen Hardy Plant Society grower. We enjoyed tea and cakes while exploring her large garden with its fascinating collection of ferns and many other lovely and well grown plants. Some ferns that caught my eye included a crested form of *Dryopteris uniformis*, a lovely *Polystichum setiferum* 'Plumosum Kaye' and the largest and most impressive *P. setiferum* 'Smith's Cruciate' that I have seen. Susan also maintains a small nursery, with both ferns and other plants in pots mingled everywhere, and we spent a happy hour or so picking out little treasures to purchase before tearing ourselves away to prepare for dinner at the Castle Hotel in Brecon. *Asplenium trichomanes* subsp. *quadrivalens*, *A. ruta-muraria* and *A. ceterach* were seen growing on walls on the way up to the castle.

Sunday 29th – Craig Cerrig Glesiad & Darren Fawr, Breconshire, and Brian & Sue Dockerill's garden, Glamorgan **Rob Cooke (a.m.), Michael Radley (p.m.)**

On another good day weather-wise we visited Craig Cerrig Gleisiad, part of the National Nature Reserve in the Brecon Beacons National Park, a site of glaciated crags, scree slopes and pasture. Time only allowed exploration of the north-facing cliffs at 22/967219, but this proved to be worthwhile. Amongst the more usual upland species – including all three main taxa of the *Dryopteris affinis* complex, the *D. cambrensis* in profusion – we quickly found oak fern *Gymnocarpium dryopteris* on the screes. Higher up on the crags with calcareous seepage lines we found green spleenwort *Asplenium viride* and hard shield fern *Polystichum aculeatum*. This site is known as one of the more southerly for arctic alpine plants, and the more adventurous also saw mossy saxifrage and lesser meadow rue, and a few of us also watched peregrines, ravens, red kites and ring ouzels. The other ferns recorded were: *Asplenium trichomanes* subsp. *quadrivalens*, *Athyrium filix-femina*, *Blechnum spicant*, *Cystopteris fragilis*, *Dryopteris dilatata*, *D. filix-mas*, *Equisetum arvense*, *E. palustre*, *Oreopteris limbosperma*, *Polypodium vulgare*, *P. interjectum* and *Pteridium aquilinum*.

The first site we visited in the afternoon was adjacent to a Merthyr Golf Club (32/030085) who had kindly given permission for us to use their car park, saving us what would have been a lengthy struggle up a steep scree-strewn limestone cliff beside the A470. Before we had skirted around the 18th hole, *Dryopteris carthusiana* was spotted growing in a small ditch. We left the golf course and grazing sheep to follow a path densely populated with bracken. Crossing over the fence we came upon an unnatural collection of limestone rocks that contained *Asplenium scolopendrium*, *A. trichomanes* subsp. *quadrivalens*, *A. adiantum-nigrum*, *Athyrium filix-femina* and slightly dry-looking *Gymnocarpium robertianum*.

We continued along the path adjacent to the golf course, coming across a large square hole that may have been a blocked mine shaft. However, this did not stop Roger Golding

clambering down to check for any ferny residents. The only new find was a *Polypodium interjectum* growing at its base. The previously overcast sky cleared, creating a gorgeous afternoon with views over the valley, and we basked in the sunshine.



photo: A.M. Paul

Darren Fawr

Paul Ripley & Susan Lewis at *Dryopteris submontana* & *Gymnocarpium robertianum* site

submontana, growing very well nestling amongst the broken rocks. The sharp-edged limestone was doing an excellent job protecting the ferns but was very hazardous to walk across. A large patch of *Gymnocarpium robertianum* growing beside *D. submontana* looked very bedraggled and in need of a good watering. We ventured further down the steep slope, with loose scree adding to the challenge, to a more impressive stand of *D. submontana*. Pat Acock pointed out the identifying feature of the glands. Making our way back up the slope to the footpath, a very attractive *Asplenium ceterach* was found within the crevice of the rock wall. Passing back along the path, another suspected mine opening was found with *Blechnum spicant* growing amongst the rocks at its base. Back at the square hole in the ground there was a debate on the possibility that one of the *Dryopteris* growing at its side was a serious contender for *D. × convoluta* (*D. cambrensis* subsp. *cambrensis* × *D. filix-mas*). With Sue making sure that no-one was left behind, we all made it back to the car park having enjoyed another successful site visit.

We proceeded further up the gently sloping path and to the right was exposed limestone with stunted hawthorn bushes and bracken. Searching the cracked rock surface we found *Asplenium viride* and *A. trichomanes* subsp. *quadrivalens*, not often seen growing in close proximity to each other. It was great to see *A. ruta-muraria* looking very photogenic growing in its natural setting. A poor example of *Polystichum aculeatum* was 'toughing it out' on the rocky slope. We now had our first sighting of the promised *Dryopteris*

The final destination of the day and weekend was to Sue and Brian Dockerill's home in Pontypridd, where we were treated to tea and cakes along with the opportunity to explore their stunning garden. The garden was excellently divided into sections using many features including a running stream, an inherited stone wall and mature trees. There was an impressive display of plants sitting very comfortably amongst ferns. Their excellent collection of ferns was well labelled and recorded in a twenty-four page document giving their location and provenance. The challenging opportunities of gardening on solid rock with the lack of any subsoil added extra charm and character to the garden. The only empty spots were the greenhouse and polytunnel, which were waiting patiently for their winter residents. The weekend concluded with Bryan Smith giving a vote of thanks to Sue and Brian for making the meeting such a success due to their attention to detail, starting with the information and instructions leading up to and covering the event, along with an excellent choice of sites giving us a good range of ferns. Thank you.

WHITBY & NORTH YORK MOORS, NORTH YORKSHIRE –

13-14 September

Saturday 13th – Egton Bridge & East Arnecliff Wood

Paul Ripley

This meeting was very much a tribute to Ken Trewren, who sadly died in 2010. He was a hugely knowledgeable pteridologist and fern enthusiast, who made a particular study of the *Dryopteris affinis* group, to a considerable extent based on his studies of the rich fern flora of his native Yorkshire.

We had good attendance (and good weather), and the group met at Egton Bridge station (45/804053), then split into two, alternating the morning and afternoon sessions. In the morning my group visited East Arnecliff Wood (45/794047), not more than a mile from Ken's home and which he had extensively surveyed. The first stop was close to the road where, in a site with some limestone, we found *Polystichum aculeatum*, *P. setiferum* and a candidate for the hybrid (previously confirmed by Ken). Although spores were few, Bruce Brown confirmed that it was very likely the hybrid, *P. × bicknellii*. We also found here *Pteridium aquilinum*, *Dryopteris dilatata*, *D. filix-mas*, and surprisingly, *Blechnum spicant*. We also noted robust *Equisetum arvense* with pronounced secondary branches.

Following a track further through the wood, we found *Polystichum setiferum*, *Dryopteris borrieri* (including the form 'insolens', a large plant with well-separated elongate, lobed, almost stalked pinnules), and plants previously identified as *D. × complexa* (*D. affinis* × *D. filix-mas*) and *D. critica* (*D. borrieri* × *D. filix-mas*). Under an overhanging boulder, we found both *Trichomanes speciosum* gametophytes and sporophytes. There are probably more plants of *Trichomanes* in these woods than in the whole of the rest of the UK! Also in this area were *Hymenophyllum tunbrigense*, *Asplenium scolopendrium*, *Polypodium interjectum* and *Oreopteris limbosperma*, in addition to species seen previously. We were shown *Dryopteris carthusiana* and its hybrid with *D. dilatata*, *D. × deweveri*. We detoured by a steep bank to see *Dryopteris dilatata* and *D. × ambroseae*, the hybrid with *D. expansa*. All these hybrids had been confirmed and extensively studied by Ken.



photo courtesy: A.J. Evans

Kate Trewren's garden, Egton Bridge

Jesse Tregale, Christine Mullins, Michael Radley, Roger Golding, Kate Trewren,
Michael Wilcox, Alison Evans, Rob Cooke, Bob Brown

In the afternoon, we visited the garden where Ken grew many of the plants he studied, especially *Dryopteris affinis* forms. Many of these plants had been dispersed to members, but the garden has been maintained by Kate Trewren with help from Alison and Chris Evans (and identification help from various members), in the hope that it will be something of a reminder of Ken, but of course also as a garden that will give pleasure to Kate, Ken's widow. The garden incorporates part of the railway embankment (the house is very near Egton Bridge station) and has an idyllic location. A range of attractive fern species and varieties (in addition to *Dryopteris affinis*) and flowering plants and shrubs made the visit most enjoyable.



photo: A.J. Evans

Kate Trewren's garden, Egton Bridge

Paul Sharp, Howard Matthews, Brian Dockerill, Sue Dockerill, Roland Ennos, Razvan Chisu, Bridget Laue, Kate Trewren, Peter Champion, Yvonne Golding

We are very grateful to Kate for her hospitality. It cannot have been easy having so many of us descending on the house. Also our thanks in particular go to Alison Evans and Bruce Brown for their excellent organisation and for researching the sites and guiding us expertly.

In the evening we re-convened for a meal at our base for the weekend, the Sneaton Castle Centre, Whitby.

Sunday 14th – Havern Beck & Sinnington

Brian Dockerill

On the second day dedicated to sites originally investigated by Ken Trewren we met at the car park on the summit of the A169 (44/852937). After following the Horcum Dyke, with spectacular views over the Hole of Horcum, we crossed the moors towards Havern Beck. At this stage the habitat looked most unpromising, a wide expanse of heather and *Pteridium aquilinum* with only one solitary *Dryopteris dilatata*. After seeing *Blechnum spicant*, followed by *Oreopteris limbosperma*, prominently placed under a stile, we started our descent into the valley with, by the path and on low cliffs, *Athyrium filix-femina*, *Dryopteris affinis*, *D. borrieri*, *D. filix-mas* and, on a tree, *Polypodium vulgare*.

Reaching the attractive streamside (44/846951) we soon found, in marshy ground, our first two horsetails: *Equisetum arvense* and *E. palustre*. Then, using a large rock as a point of reference, we climbed up the far side of the valley. The tough going led to the first of many

tumbles, and we had sight of an adder who unexpectedly was reluctant to leave its basking spot, despite the large party of noisy pteridologists. Bruce Brown led us to see several strongly growing *Dryopteris cambrensis*, allowing the experienced members of the group to summarise its defining characteristics. Further scrambling through light woodland took us to a group of *D. affinis* subsp. *paleaceolobata*. Sharing some similarity with *D. cambrensis*, of which we had brought fronds, this was the perfect opportunity to study the distinctions between them. Unfortunately, this was also of great interest to the local midges, and we retreated back into the open to enjoy a well-earned lunch.

Refreshed, we headed up the stream quickly finding two further horsetails: *Equisetum fluviatile* and *E. telmateia*. This route led us to a plant identified by Ken as a *Dryopteris* × *complexa*, although it had not been confirmed by him which of the *D. affinis* aggregate was involved. Reference to the recently published field guide, and the presence of *D. cambrensis* nearby, led to the view that, although rare, this was an example of *D. × convoluta* nothosubsp. *occidentalis* (*D. cambrensis* subsp. *cambrensis* × *D. filix-mas*).



photo: Y.C. Golding

Members examining *Dryopteris* × *convoluta* nothosubsp. *occidentalis* in Havern Beck

Chris Evans, Michael Radley (*at back*), Brian Dockerill, Bruce Brown, Alison Evans

After retrieving Sue Dockerill's glasses from the stream, we carried on uphill, passing a large limestone rock on which were seen *Asplenium ruta-muraria*, *A. scolopendrium*, *A. trichomanes* subsp. *quadrivalens* and *Cystopteris fragilis*, and finally reached a beautiful series of waterfalls. Most of the party re-traced the route home, although two brave souls decided, successfully as it turned out, to climb directly up from the head of the valley. This great outing was fortunately blessed by dry weather; crossing the stream in spate, in rain, with the boggy areas much wetter, would have been very different!

Following refreshing ice-creams we re-grouped in Sinnington (44/744858) to visit the colonies of *Polypodium* 'sinningtonense' investigated by Ken Trewren and previously reported in the 2007 *Bulletin* 6(6):473, but later confirmed to be a form of *P. interjectum*. Earlier visits had noted around 20 colonies of this *Polypodium* but several had been out of reach on a tree overhanging the river. Fortunately Razvan Chisu proved braver than most and retrieved two further samples, both subsequently identified as the *P.* 'sinningtonense'

form by Bruce Brown. On the bank below a nearby seat we were shown an area of *P. × mantoniae* in which one parent is believed to be *P. 'sinningtonense'*. With much scrambling along the lime-rich streamside we added to the list many *Asplenium scolopendrium* and *Polystichum aculeatum*, a single *P. setiferum* and *P. × bicknellii* plus small *Dryopteris borrieri* and *Asplenium trichomanes* subsp. *quadrivalens*. We ended an excellent day with a leisurely walk back to Sinnington.

Ferns seen in North York Moors, September 2014

	Saturday 13th		Sunday 14th	
	East Arnecliff Wood	Egton Bridge, near car-park	Havern Beck	Sinnington
<i>Asplenium ruta-muraria</i>			+	
<i>A. scolopendrium</i>	+		+	+
<i>A. trichomanes</i> subsp. <i>quadrivalens</i>			+	+
<i>Athyrium filix-femina</i>	+		+	
<i>Blechnum spicant</i>	+		+	
<i>Cystopteris fragilis</i>			+	
<i>Dryopteris affinis</i> subsp. <i>affinis</i>		+	+	
<i>D. affinis</i> subsp. <i>paleaceolobata</i>			+	
<i>D. × ambroseae</i>	+			
<i>D. borrieri</i>	+		+	+
<i>D. cambrensis</i>			+	
<i>D. carthusiana</i>	+			
<i>D. × complexa</i>	+			
<i>D. × convoluta</i>			+	
<i>D. × critica</i>	+			
<i>D. × deweveri</i>	+			
<i>D. dilatata</i>	+		+	
<i>D. filix-mas</i>	+		+	+
<i>Equisetum arvense</i>	+		+	
<i>E. fluviatile</i>			+	
<i>E. palustre</i>			+	
<i>E. telmateia</i>			+	
<i>Hymenophyllum tunbrigense</i>	+			
<i>Oreopteris limbosperma</i>	+		+	
<i>Polypodium interjectum</i>	+			
<i>P. 'sinningtonense'</i>				+
<i>P. 'sinningtonense' × P. vulgare</i>				+
<i>P. vulgare</i>			+	+
<i>Polystichum aculeatum</i>	+			+
<i>P. × bicknellii</i>	+			+
<i>P. setiferum</i>	+			+
<i>Pteridium aquilinum</i>	+		+	+
<i>Trichomanes speciosum</i>	+			

JAPAN (joint meeting with The Hardy Fern Foundation) – 23 October - 3 November

Introduction

Pat Acock

During the 12 years that we have arranged BPS/HFF meetings the idea of a visit to Japan regularly came up. It was therefore remarkably fortunate that Pat Riehl, our friend in Seattle, met up with Marilyn Tsuchiya and later her husband Kazuo. They had organised botanical and garden tours of Japan for a number of years and said they would make enquiries as to the feasibility of a fern tour. Somehow they managed to find many of the leading pteridologists in Japan, who were only too pleased to help us, and found us an extra interpreter, Asher Ramras. We were really blessed by the large number of people who came out most days to help the 18 of us in the group. To all these remarkable people we extend our heart-felt thanks.

We must, however, make special mention of our leaders: Mr Taketoshi Oka who led the part of the tour close to Tokyo and Mr Ichiro Yamazumi who led us on the Kyoto leg of the trip. Each of these gentlemen had spent hours with colleagues checking out sites and producing the most splendid detailed checklists for each day. These had exceptionally reproduced colour photographs of the ferns, which made identification and later recall so much easier. Whilst in the field they were both most excellent companions, being so knowledgeable about the plants and the various ecosystems. Their knowledge of the ferns and ability to show us the details that allowed us to identify similar ferns, including the tiny differences that distinguished the hybrids, was second to none. Their patience with us and the way they overcame linguistic problems in order to answer our questions and to enlighten us was mixed with the most cordial good humour, so that on parting from them we were all saddened and wondered how we could return soon to renew our friendships and experience once more this richest of fern experiences.

Thursday 23rd October – Tsukuba woodland & Botanic Garden **Martin Rickard**

The day had an unpromising start as we woke up to torrential rain that continued until mid-morning. Mr Oka, our wonderful guide, very kindly gave us each our extremely useful illustrated fern guide for the day.

Fortunately the rain had stopped by the time we reached our first site, a conifer/bamboo plantation near Tsukuba (36°11'19.3"N, 140°09'37.8"E) some way north of Tokyo. This was chosen as a starter site – not too many ferns and nothing rare, although quite a few were new to most of us. We followed a rarely used concrete road up through the woodland. Ferns were not particularly abundant but a good selection grew in the banks by the side of the road. Out of about 35 species seen, several were UK favourite garden ferns. *Dryopteris* was well represented, with *D. erythrosora*, *D. uniformis* and *D. bissetiana*. Other familiar species were *Anisocampium niponicum* (*Athyrium niponicum*), *Arachniodes standishii*, *Coniogramme intermedia*, *Onychium japonicum*, *Osmunda japonica*, a rather scruffy *Matteuccia orientalis* (now *Pentarrhizidium orientale*) with sporing fronds just emerging, *Polystichum tripterum* and *P. polyblepharum*. The less familiar species were the greater attraction, including three more *Dryopteris*: *D. hondoensis*, *D. nipponensis* and *D. pacifica*. Difficulties with identification of these few species were but nothing compared to what was in store later during the trip!

Fortunately there were easier species to admire. *Lepisorus thunbergianus*, epipetric on rocks, was occasional although we had seen quite a lot of it earlier near a roadside comfort stop. *Arachniodes borealis* did not look like a typical *Arachniodes*, being more like a large *Cystopteris*. *Dennstaedtia hirsuta* was a short-fronded species most unlike most *dennstaedtioides*, in fact possibly quite attractive if brought into cultivation. *Asplenium incisum*, a pretty little fern growing intermixed with *Dennstaedtia hirsuta*, has been offered commercially by UK nurseries but it does not often persist and is sadly rarely seen these days. *Polystichum longifrons*, looking very like *P. polyblepharum*, caused some confusion; the former differs by having pinnae more widely spaced along the rachis. Rather common was *Stegnogramma mollissima* with its pendulous fronds carpeting the banks in places.

Veterans of the Isle of Réunion trip were pleased to see *Sphenomeris chinensis*, although in those golden days we could still call it *Sphenomeris chinensis* – now it is *Odontosoria chinensis*! Near the top of the road, just as we were told to make our way back to the bus, Pat Acock let out a squeal of delight! He'd spotted *Diplopterygium glaucum*, a long gangly-fronded member of the Gleicheniaceae. One treasure I missed was the charming little filmy fern, *Crepidomanes minutum*. I think that was Kylie's triumph for the day! Finally I should mention a clubmoss, *Huperzia serrata*, a handsome but small erect form, a little like our *H. selago*.



photo courtesy: P.J. Acock

BPS/HFF members with the Nippon Fernist Club

Taketoshi Oka, Liz Parsons, Dwayne Stocks, Kazuo Tsuchiya, Kylie Stocks, Tim Pyner, Susan Yamins, Alison Evans, Walt Riehl, Paul Ripley, Wendy Born, Pat Riehl, Dan Yansura, Martin Rickard, Grace Acock, Lindsey Holleworth, Toshio Oka
Front row: Asher Ramras, Chitra Parpia, Liz Evans

After a quick group photo-call we all climbed back into the bus and headed for the Tsukuba Botanic Garden. Here we were met by Dr Matsumoto, who had recently retired as a full-time researcher at the gardens. Sadly time was short and after a quick look at examples of species conservation work, we were led around the glasshouse collections. There were a lot of good things here. *Asplenium* × *kenzoi* caught my eye, as did a beautifully grown specimen of *Botrychium multifidum* var. *robustum*. The weather was a bit damp while at Tsukuba so we rushed around the outdoor fern collection, which looked huge and deserved much closer inspection. Name tags frequently involved a 'Fraser-Jenkins'. Who's he?! Finally we were whisked off to the research area. This was the highlight for me. Two or three tunnels or greenhouses filled with ferns. In one was a very large collection of *Cyrtomium* species and cultivars. Almost apologetically Dr Matsumoto admitted these were one of his specialities! We just gave them a glance, very frustrating as there would have been much we could have learned, especially with the expert on hand. My obsession these days is with *Polypodium* s.s. and I asked if Dr Matsumoto could show me plants of the Japanese species. Fortunately he had some in the collection. Their *Polypodium* 'vulgare' is

very rare so I was fortunate to be able to see a plant. It is quite distinct from our European species but I do not think a name has been finally fixed. Dr Matsumoto also had *Goniophlebium niponicum* (formerly *Polypodium niponicum*) and most interesting to me was *Polypodium* × *takuhinum* – the hybrid between ‘*P. vulgare*’ and *P. fauriei*. Very kindly Dr Matsumoto gave me a piece of the hybrid! This final *Polypodium* session was, for me, the highlight of the day. I had peppered Dr Matsumoto with many questions and all were dealt with with great tolerance and kindness. Later in the week he gave me some *Polypodium* article photocopies, completely unsolicited; just another example of the great kindness of our Japanese hosts throughout the tour.

Friday 24th October – Hakone District: Lake Ashino & Otamaga Pond Tim Pyner

We started from the coach park by Lake Ashino (35°14′02.4″N, 138°59′53.5″E) and a large colony of a small *Lepisorus onoei* was immediately spotted growing on the bole of a large tree. This charming little fern with narrow, leathery fronds about five centimetres tall often formed large colonies on trees, walls and even wooden handrails along our route. Armed with the day’s fern list we started on an easy walk, ascending gradually up a wide path alongside Lake Ashino. This turned into a slow stroll due to the large number of new ferns along the route. The sight of handsome shuttlecocks of *Deparia orientalis* halted us from the very start and a mat of *Selaginella remotifolia* carpeted the ground nearby. Further on a large colony of *Diplazium squamigerum* was growing amongst bamboo. We reached a mossy retaining wall and here several *Asplenium* species were established, giving us our first opportunity to examine some Japanese species. *A. sarelii* and *A. tenuicaule* were small species with bipinnate fronds and rather similar in appearance. We would see this pair quite frequently over the coming days. However, the third species, *A. ruprechtii*, was very easy to recognise as it had small, entire fronds that root at the tip. It is very closely related to the American walking fern, *A. rhizophyllum*. *Polystichum* was proving to be a very difficult genus to understand and several different species were seen on shady banks including *P. polyblepharum*, *P. tagawanum*, *P. tripteron* and the tiny *P. craspedosorum*, another small fern with rooting frond tips. We finished in an area of *Cryptomeria* plantation where we saw *Polystichum makinoi*, *P. pseudomakinoi* and the magnificent *P. ovatopaleaceum*. Mr Oka laid out fronds of these and *P. polyblepharum* and demonstrated the differences in scales and soral position. This proved very helpful in recognising these species and also in spotting new species and hybrids over the coming days. As always our interpreter, Asher, was of immense help whenever called upon to translate fern talk.

Our last stop was at Otamaga Pond (35°12′10.6″N, 139°30′51.6″E), a small lake hosting some familiar ferns: *Onoclea sensibilis* and *Thelypteris palustris*. Our goal, however, was ferns of much greater interest. Walking into the forest we soon came across some boulders coated with a minute grammitid fern, *Micropolypodium okuboi*. The fronds measured between one and three centimetres long and were coated with fine reddish bristles. From a distance they resembled mosses of the genus *Fissidens* rather than ferns but close examination with a hand lens revealed tiny sori on the back of the fronds. Further on we reached a large rock where we had our first encounter with filmy ferns. Here we saw *Hymenophyllum wrightii*, *H. barbatum* and a member of the difficult *Vandenboschia radicans* complex, *V. × stenosiphon*.

Unfortunately, due to traffic congestion the planned visit to our final site, Gotemba, was abandoned. However, the ferns seen by Lake Ashino exceeded expectations and made up for any disappointment.

Saturday 25th October – Miho Park, Yokohama area Pat Riehl

Unfortunately the morning traffic was bad and the one-hour bus ride to Miho Park (35°30′10.6″N, 139°30′51.6″E) took two hours. This delay was exacerbated by the driver being unable to find the entrance to the park. The only positive point was the absorbing sights of the neighbourhoods we passed through. On arrival we were told not to stop and

look at the first ferns as we were there to see some special ones and time was short. These new fern sightings were *Botrychium japonicum*, *B. nipponicum* and *B. ternatum*; the largest was *B. japonicum* with a serrated frond edge, then *B. ternatum* with a lighter midrib and finally *B. nipponicum* with crisped foliage. This was my first experience of *Botrychium* and it was hard to believe it was a fern. Moving along, we passed a large interpretation board created by the Yokohama municipal corporation locating various ferns and showing the fern life-cycle. Our next serious fern sightings were *Dryopteris hondoensis*, *Deparia conilii*, *Polystichum fibrillosopaleaceum* and *P. polyblepharum* and their hybrids, and also *Dryopteris lacera* and *D. uniformis* and their hybrids.

We were walking in woodland with a high tree canopy so the light was filtered on to a trail that was very uneven with many exposed tree roots to navigate. Another of today's goals was to see the hybrid between *Osmunda lancea* and *O. japonica*. We went off the trail and down a steep slope past *Helwingia japonica*, *Wisteria* and an earth star fungus. After going up and down the hill someone found our quarry up the hill. Moving back down, we passed a large patch of variegated *Coniogramme japonica* well over a metre tall. Ahead was an amazing sight, a tree trunk totally covered in *Lemmaphyllum microphyllum* reaching high above everyone's head.



photo: P.J. Acock

Miho Park

Mr Oka showing Asher Ramras the differences between *Osmunda japonica* and its hybrid with *O. lancea*



photo: P.J. Acock

Lemmaphyllum microphyllum on tree in Miho Park

Hymenophyllum. Dr Norio Sahashi then gave a presentation on Ophioglossaceae. He brought many herbarium sheets, some of which were very old, to show the subtle differences, which was very interesting. Dr Sahashi served as president of the Nippon Fernist Club for ten years. The presentations were followed by a buffet dinner and a chance to meet new friends and exchange information on ferns.

We were back in time to freshen up before heading to join the Nippon Fernist Club for a few presentations by their members in a hotel conference room. One Japanese woman was wearing a beautiful pale yellow kimono with a fern pattern in the fabric. Dr Kunio Iwatsuki welcomed us and explained that they chose the name Nippon Fernist Club to convey how the members felt about themselves and their fern studies. He then introduced Dr Atsushi Ebihara, who gave a presentation on the native ferns of Japan, the total of which is 1,110. A few of the species numbers he gave us were *Hymenophyllum* 39, *Asplenium* 37 and *Dryopteris* 164. Interestingly, the vast majority are located on the Pacific side of Japan. Dr Ebihara had also written on the taxonomy of Japanese



photo courtesy: P.J. Acock

BPS/HFF members with the Nippon Fernist Club

Sunday 26th October – Jinmuji Forest & Hōkokuji Temple

Daniel Yansura

On Sunday morning, with the bustle of the city of Kamakura surrounding us, we entered the quiet Jinmuji Forest (35°18'14.2"N, 139°36'21.7"E) on the Miura Peninsula. The entrance was lined with a number of woodland ferns that we had seen earlier in the trip: *Cyrtomium clivicola*, *C. laetevirens* and *Onychium japonicum*, while cracks in a concrete wall on our right provided a home for *Asplenium incisum* and *Lygodium japonicum*. Once through the entrance, the quiet, winding, wooded path climbed slowly through beautiful stands of *Arachniodes standishii*, *Dryopteris pacifica* and *Microlepia marginata*. Soon the trail passed near some rock walls and a few Buddhist shrines, and expectations rose for finding epiphytic ferns. *Selliguea hastata* was our first sighting, a delightful new fern to most of us. Further along the rock wall we spotted *Vandenboschia* × *stenosiphon* as well as the simple, stiff, dark green fronds of *Deparia lancea*. Nearby on the ground was a beautiful clump of *Arachniodes aristata* with dimorphic fronds. Approaching the temple we saw a bank of *Polystichum lepidocaulon*, from the tips of which bulbils start new plants. Careful searching found one plant with four generations that had developed from the original plant.

As we reached the higher elevation of the Jinmuji Temple (35°18'13.8"N, 139°36'23.1"E), some new ferns caught our attention. The first of these was *Crepidomanes minutum*, growing on a tree and on a nearby rock. Although difficult to photograph because of its small size, it was a pleasure to see. The narrow entrance into the temple grounds was lined with a high man-made rock wall with ferns in every niche between rocks: *Odontosoria chinensis*, *Adiantum capillus-veneris*, *Selliguea hastata*, *Pteris cretica*, and the usually terrestrial *Woodwardia orientalis*. The Buddhist temple itself was built in the eighth century and consisted of a few well-kept buildings, shrines and a huge brass bell. The surrounding peaceful garden was covered with moss as well as plantings of *Selaginella moellendorffii*, *Pyrrosia lingua* and a huge bowl of *Marsilea*, possibly *M. crenata* or *M. quadrifolia*. Near one of the outer walls we discovered *Hymenasplenium hondoense* in dense vegetation. This medium-sized fern had delicate leaves and needed high humidity, and it was certainly one of the most exciting finds of the day.

On the way back we took a different trail down the slope and entered a narrow, wet, fern-filled canyon, where everything was big and lush due to the ideal growing



photo: D. Yansura

Jinmuji forest

Deparia lancea surrounded by
Polystichum tripterum

conditions. *Arachniodes standishii*, *Polystichum tripterum* and *Deparia lancea* hung to the steep slopes on either side of us, while huge specimens of *Coniogramme japonica*, *C. intermedia*, *Diplazium wichurae*, *Polystichum polyblepharum* and *P. fibrillosopaleaceum* filled the lower levels. Eventually we descended to drier areas near the end of the trail, and *Pteris* and *Cyrtomium* species, as well as the small *Anisocampium niponicum*, were the most predominant ferns (35°18'31.6"N, 139°35'51.4"E).

In the late afternoon we went to see the Hōkokuji Temple (35°19'16.1"N, 139°34'11.1"E), Kamakura, established in 1334. The gardens had beautiful plantings of moss and bamboo, with *Selliguea hastata* and *Lepisorus thunbergianus* growing naturally in the moss on most rocks.

That evening we all gathered in Martin's hotel room to drink wine and recall the wonderful ferns we had seen in Tokyo's outlying areas. The next morning we would be taking the train south to the mountains near Kyoto.

Monday 27th October – Kyoto to Kawakami

Lizzie Evans

We walked around the corner from the hotel to Shin-Yokohama railway station to catch the 8.49 a.m. 'Shinkansen' bullet train to Kyoto. The train was perfectly on time and although it was incredibly spacious compared to trains in England, the rapid boarding time made us very grateful that our suitcases had been transferred to the next hotel ahead of us.

We arrived at Kyoto after a very comfortable two-hour journey, and found plenty of places to choose from to get our lunch for the next leg of the journey. We boarded another very comfortable train on the Kintetsu line to Yamoto-Kamitachi station, making one change along the way. We were once again very grateful to have the help of our guides to navigate through the station, although the signs were given in both Japanese and English. Once out of the big city of Kyoto we started noticing a change in the landscape, and when we boarded the final train we really began to feel as though we were in a more rural area, with more rugged countryside and traditional looking houses.

On arrival at our destination station we were greeted by Mr Ichiro Yamazumi, our guide for the Kumano Kodo region. A hotel shuttle bus conveyed us to Sugino Yu Kawakami Onsen Hotel in the small village of Kawakami. The Kumano Kodo is a beautiful region of walking trails, selected as a Unesco World Heritage Site. There was soon (in early November) to be a water festival held here and the road was being improved so that the Emperor and Empress of Japan could visit the hotel and take part in the festival. As soon as we arrived at the hotel we were impressed with the view of mist-shrouded, tree-covered mountains rising above a green-blue lake, and although it was raining quite heavily one brave group decided to squeeze in a couple of hours of ferning before our evening meal. Just in the area near the hotel they spotted in the region of 30 species, many of which we had already encountered, but also adding some new species to the list including *Coniogramme intermedia*, *Arachniodes simplicior* and *Dicranopteris linearis*.

We had a choice when booking the hotel between Western style and traditional Japanese style rooms, and I have to say the Japanese style was one of the most comfortable rooms I have ever stayed in! At 6 p.m. we were treated to a traditional Japanese meal of numerous exquisitely presented courses, all themed around fish. It was a real Japanese experience! After dinner we were given a talk about the Kumano Kodo region – including warnings about some of the dangerous creatures we might encounter – and we went to bed that night excited at the prospect of the next day's exploration.

Tuesday 28th October – Myojin Taki & Naka Oku trail

Pat Acock

After about an hour's journey, climbing eventually in a narrow gorge along the Sannoko River, we parked the coach (34°15'33.6"N, 136°05'49.0"E) and met up with several more Japanese park or natural history personnel, including Ms Seiko Onoue who was also accompanying us for this leg of the trip. Thus we were well supported with five or six people to help with identification of the plants and the logistics. Before setting off, the youngest of the group led us through a small ritual at a roadside shrine. We made our way along a narrow trackway across wooden bridges, a few of which had been especially

repaired for our visit to the Myojin Taki Falls, which were about one kilometre away through a primeval forest of *Pseudotsuga japonica*. Progress was slow since there were many new ferns to learn and many old ones to relearn. The ferns were really special and the first to delight me was *Monachosorum maximowiczii*, which formed dense clumps on rocks. *Plagiogyria japonica* and *P. euphlebia* were seen along with their hybrid. Aspleniums seen in abundance included *A. trichomanes*, *A. normale*, *A. yoshinagae* and *A. tenuicaule*. On our return from the waterfall we were shown the quite rare *Polystichum igaense* that we had missed on the way out, and there were at least five filmy ferns including *Hymenophyllum barbatum*, *H. polyanthos*, *H. badium* (syn. *H. flexile*) and *Crepidomanes* (*Trichomanes*) *minutum*. It was also nice to see *Dryopsis maximowicziana*. We were eventually hurried along the trail to the lunch spot with the promise of a good long time to fern on the way back but despite a short lunch it was all still a rush and we were hurried along again. On the bus ride back we fitted in an extra stop by a bridge to see *Osmunda lancea*, having previously only seen its hybrid with *O. japonicum*.

Our last stop was on the Naka Oku trail (34°18'01.4"N, 136°00'13.7"E). Dusk was approaching and there were many wonders to see. In the gathering gloom we saw *Neolepisorus ensatus* (*Neocheiropteris ensata*), *Adiantum monochlamys*, *Dryopteris sabaei*, and a clump of diplaziums – *Diplazium chinense* and *D. nipponicum*, with their hybrid *D. × bittyuense* growing between them. Most of the group were fortunate to see *Rhachidosorus mesosorus*. This was another splendid day with many new genera and a whole host of species, many of which were new to us.

Wednesday 29th October – Mifune no Taki area

Alison Evans

We started our hike along a track to the Mifune no Taki Falls (34°20'37.0"N, 136°00'30.8"E). As usual in a new location, ferners scattered in all directions so it took some persuasion on Asher's part to shepherd us across a wooden bridge to the first two star ferns of the day – the lovely little hairy *Pleurosoriopsis makinoi* growing on a rock at a convenient height for photography, and *Polypodium fauriei*. A short walk uphill was rewarded by a view of the waterfall, cascading over rocks between trees that were turning to their autumn colours. Ferns were all around – *Athyrium clivicola*, *Arachniodes mutica*, *Monachosorum maximowiczii*, *Hymenophyllum barbatum* and *Coniogramme intermedia* to name but a few.

We retraced our steps to the small road by the River Ikari, to walk downhill to Morimori-kan. We soon had some *Polystichum* revision, seeing *P. polyblepharum*, *P. ovatopaleaceum*, *P. pseudomakinoi* and *P. retrosopaleaceum* all within a short distance of each other. Just as we were thinking we were sorting these out, Mr Yamazumi showed us three hybrids in fairly quick succession – *P. × amboversum*, *P. × hatajukuense* and *P. × namegatae* – the latter conveniently growing next to both parents. There were so many things to look at that the group became very spread out, with some people climbing down to the river gorge. Perhaps this was when the collective noun, a delay of pteridologists, seemed most appropriate. Mr Yamazumi pointed out a fourth *Polystichum* hybrid, *P. × ongataense*, the hybrid of *P. ovatopaleaceum* and *P. pseudomakinoi*. Our next star fern was *Woodsia manchuriensis*, with several plants growing on the roadside bank. A little further on we found the 'advance' party sitting by the roadside having lunch, having not quite reached the intended lunch-time picnic place. We were briefly all together, but as the afternoon walk took us through woodland alternating with more sunny sites, it brought an even greater range of ferns and the group was soon widely dispersed again. Ferns of note here included *Monachosorum flagellare*, *Loxogramme grammitoides*, *Dryopteris dickinsii*, *Cornopteris decurrenti-alata* and *Acystopteris japonica*.

We all gathered together outside the café at Morimori-kan (34°19'38.2"N, 136°00'29.6"E), where the adventurous amongst us tried some dried venison, and crunchy black beans in brown sugar, whilst Kazuo caught a couple of fish in the river to help a fisherman who was struggling with arthritis. Mr Yamazumi then said that there was *Pyrrosia linearifolia* a little way down the road, so a group of us set off to see it. The first clump we saw was way above our heads, so Asher climbed up the cliff to take a frond – then we noticed some plants within easy reach! We also saw *Deparia okuboana* and *D. orientalis*.

The second site on our itinerary for the day was Koudako (34°16'43.4"N, 135°58'38.8"E). A short bus ride took us to a small riverside track, then after a brisk walk past warning signs about bears and snakes we reached the target fern, *Micropolypodium okuboi*, growing on a rock-face in very low light, along with *Hymenophyllum barbatum*. Tim noticed a little fern on the rock close by, which he identified as *Lepidomicrosorium buergerianum*. We later realised that the fern our guides were calling *Neochheiropteris subhastata* was the same species, the names being based on different frond forms. We were fortunate to see it again in well-grown colonies on our last hiking day near Kyoto. On our way back, our guide Ms Onoue showed us *Asplenium pseudowilfordii* growing on a rock by the river. The light was fading as we walked back, but we still managed to record more than 50 species at this site, bringing the total for the day to around 96 taxa. Another amazing day!

Thursday October 30th – Shiraya deserted village & Seirei no Taki Falls Paul Ripley

We started with a very short drive up-river and across to the other bank, where, ten years ago, an entire village (Shiraya) (34°20'05.0"N, 135°57'59.3"E) was moved because of a landslip. It was terraced, south-facing, and a minor tourist attraction. Options had been kept open; working water taps had been newly fitted at every empty street corner. The feature here was *Asplenium pekinense*, growing with *A. sarelii* and *A. incisum*. We were shown the hybrid between the last two, but Pat cleverly also found the hybrid between *A. sarelii* and *A. pekinense*.

Our main stop was the tourist site of the Seirei no Taki (Dragonfly) Falls (34°21'16.4"N, 135°55'03.2"E), where from a flat grassy area, a steep stepped path led up to a beautiful three-staged waterfall. The site was heavily wooded but at lower altitude than the previous two days. Features of this site were *Arachniodes standishii*, *A. borealis*, *A. chinensis*, *A. simplicior* and *A. amabilis*, all three *Plagiogyria* species: *P. adnata*, *P. euphlebia* and the intermediate *P. japonica*, a very fine clump of *Neolepisorus ensatus*, and athyriums, including *A. clivicola*. A number of filmy fern species – *Hymenophyllum barbatum*, *Crepidomanes latealatum*, *C. minutum*, *Vandenboschia hokurikuensis* and *Hymenasplenium hondoense* – also grew in damp places by the river. Above the falls, *Dicranopteris linearis* and *Diplopterygium glaucum* grew in a slightly drier area, but taking a higher lateral path we found *Crepidomanes minutum*, *Pyrrosia lingua* and, unexpectedly, *Asplenium wilfordii*. Tim also found *A. pseudowilfordii* here.

On our way back we visited a museum of local history just above our hotel, and were shown a diorama and a beautiful film illustrating life in the forest. The museum included information on prehistory, and details of more recent commercial exploitation of the forest. The *Pseudotsuga* trees are planted very close, and the subsequent slow growth leads to a dense wood that is highly prized. Among other things it is used for sake barrels, and pine needles were woven into a ball hoisted as a signal that the sake brew was ready.

Friday 31st October – Kyoto, Yoshida Temple

Tim Pyner

We spent the morning travelling to our next hotel in the city of Kyoto. Following our arrival several of us walked to a book fair being held in the gardens of a temple. After a fruitless search for fern books I decided to walk to some forested hills visible in the distance and see if I could find some more ferns. After a few hundred metres I reached a wooded hill that had several temples scattered on it. The wood was rather dry but ferns were frequent, the most common being *Dryopteris erythrosora*. More interesting finds included *Arachniodes borealis*, *Blechnum nipponicum*, *Dryopteris hondoensis* and *Microlepia marginata*. I also came across *Plagiogyria japonica*, which was rather surprising as previously I had associated this with much wetter forests. *Asplenium incisum*, *A. sarelii* and *Lemmaphyllum microphyllum* grew on walls.

Saturday 1st November – Uji, lectures & final banquet

Pat Acock

We started out early by taxi to Kyoto Station where we had a little while to pick up our lunch before taking a train out to the suburbs near Uji (34°20'36.7"N, 135°57'18.3"E). Here we met three lovely ladies, a young chap and the leader for the day along with our faithful host Mr Yamazumi. We took a bus to the start of the trail – and the rain; it was not long before it was really quite wet. After a short walk down the lane, where there was another interesting

subset of ferns including *Parathelypteris angustifrons*, *P. glanduligera* and *Cyclosorus acuminatus*, we came to a temple where we waited for the others in a tourist shelter. The rain abated and we went up to see the temple. Up in a nearby tree was *Pyrrosia lingua*.

In constant drizzle we went down the other side of the hill and followed a narrow path above a stream where we saw a whole host of ferns growing most luxuriantly. To start with there were three interesting *Dryopteris* to get to grips with: *D. formosana*, *D. medioxima* and *D. sparsa*. I had been interested in *D. formosana* since I first saw a picture of it in Barbara Jo Hoshizaki and Ken Wilson's paper on *Dryopteris* in cultivation (*American Fern Journal* 89: 1-98) and had tried to grow it ever since but without success. Other ferns included very large specimens of *Neolepisorus ensatus* (*Neocheiropteris ensata*) and *Lepidomicrosorium buergerianum* (*Neocheiropteris subhastata*) along with *Arachniodes amabilis* × *A. aristata*, which I found for myself although we knew it was along the trail.

On reaching a road we had lunch before going up the road to one of Japan's biggest temples where coach loads of people were turning up. We saw a new *Dryopteris*, *D. kinkiensis*, in the temple grounds along with many favourites.

We returned by local train and underground to the hotel where we had half an hour to get ready for an afternoon of lectures. The talks were very informative and diverse: Dr Kato spoke on the *Osmunda japonica* / *O. lancea* complex, Dr Suzukion on ethnopteridology, and Mr Yamazumi on his work raising haploid ferns straight from diploid *Dryopteris* gametophytes. He was extending this work to research raising gametophytes of polyploid *Dryopteris* and *Osmunda* without fertilisation. We then had an hour to pack our bags to get them on the carrier to be taken to the airport. The evening meal was our final one all together at a special hotel that served a full Japanese meal. Some of our helpers over the last few days joined us for this banquet, which was tinged with sadness at parting from people of whom we had grown so fond.



photo: P.J. Acock

Ms Misao Mizohata, Mr Yamazumi, Ms Yoko Iguchi at Phoenix Hall, Byodo-in

Sunday 2nd – Monday 3rd November – Departure & Conclusion **Pat Acock**

We decided to go to Kyoto Botanic Gardens on Sunday morning. The plants were very fine but more labelling was necessary.

Most of the British contingent had to stay at the airport hotel to be sure to catch their early-morning flight; the rest of us had a meal together and an early night. Next day we thanked Kazuo once more for all his hard work. Asher accompanied us on the bullet train back to Tokyo from Kyoto to catch our train to the airport where we dispersed. Ironically our aeroplane landed back in Kyoto to take on fuel!

We must thank Pat and Walt Riehl for seizing the opportunity of this exciting and truly wonderful excursion, as well as Marilyn and Kazuo Tsuchiya who had put it all together, and Kazuo and Asher our tour leaders for all their diligence in ensuring that we had a real Japanese experience and for sorting out with such grace problems as they arose. Most of all we thank Mr Taketoshi Oka, Mr Ichiro Yamazumi and Ms Seiko Onoue and their colleagues for their hard work in ensuring that we all had the most rich of fern experiences.

[Tim Pyner kindly produced a list of ferns seen at the different sites, see:
www.ebps.org.uk/meetings/reports/japan/]

LECTURE MEETINGS AND DAY VISITS

SPRING INDOOR MEETING, NATURAL HISTORY MUSEUM, LONDON – 12 April

Peter Blake

This meeting, held in the Earth Sciences Seminar Room, was chaired by the President, John Edgington, who welcomed more than 50 members and friends. He also recorded the sadness of the Society that one of its members, Jamie Taggart of Linn Botanical Garden in Scotland, was lost, presumed dead, whilst on a solo plant-hunting expedition in Vietnam in the autumn of 2013.

In addition to the formal annual business meeting (reported elsewhere) there were six presentations, the last five having a distinct globe-trotting theme.

The first talk was by Paul Sharp, University of Edinburgh, on 'Impacts of DNA sequencing on fern taxonomy'. Paul described the history of sequencing of proteins and later of DNA, emphasising the contributions of double Nobel-Laureate Fred Sanger. Continued development of sequencing techniques has made comparative studies of DNA easier, cheaper and much more widely available than was the case even ten years ago. Initially, sequence data from animals and the fossil record were used to show that the numbers of differences between species increase with time since their divergence, and therefore it is possible to estimate when evolutionary lineages shared a common ancestor and to determine the evolutionary relationships among organisms. In recent years, considerable amounts of sequence data have been gathered to investigate the evolution of plants.

In particular, Kathleen Pryer and her colleagues have applied these techniques to pteridophytes, showing for example that equisetums are true ferns but that other 'fern allies' such as lycopodiums and selaginellas diverged from the lineage leading to ferns and seed plants much earlier. Additionally, while fossils dating to around 300 million years ago show that ferns pre-dated the origin of the angiosperms, molecular analyses have been used to estimate that the major diversification among modern fern lineages occurred much more recently, around 70-100 million years ago. This post-dates angiosperm expansion and suggests that ferns diversified in (literally) the shadow of the angiosperms, exploiting the new habitats they had created.

Sequence studies have also resulted in changes in fern taxonomy. Paul highlighted a case involving xeric ferns, where 19 species of *Cheilanthes* have recently been moved to a newly created genus *Gaga*, so named because they share a GAGA sequence motif within a gene used for 'bar-coding', and also in honour of a certain popular entertainer. He went on to note that this 'bar-coding' was often based on DNA from the maternally inherited chloroplast, rather than DNA from the nucleus, and therefore only reflected part of the evolutionary history of a species, which is problematic when that history has involved hybridisation. This would need to be borne in mind if automated bar-coders become widely available.

The second presentation was by Ashley Basil and detailed a trip with his wife to Chile and, specifically, the Juan Fernandez Islands, three hundred miles off the coast. Ashley told us of the wide variety and number of endemic species in the islands, particularly Robinson Crusoe Island. However, these endemics were under severe threat by invasive mainland introductions of both animals, such as the goat and rabbit, and plants, particularly European brambles and shrubs such as myrtle and, more recently, *Sambucus*. Equally, conservation was hampered by disputes over funding and access and protection of sites. Nevertheless, there were many ferns to see and his presentation was accompanied by excellent slides, which are also available on ashleybasil@flickr. Several species of *Blechnum* were seen including *B. cycadifolium*, *B. hastatum*, *B. mochaenum* and *B. schottii*. *Arthropteris altoscandens* was admired as it climbed high up tree-trunks and many different hymenophyllums were seen. The highly branched *Dicksonia berteriana* was the commonest tree fern amongst many other interesting and beautiful ferns. Ashley concluded

that the islands were well worth visiting now but that the current local conservation efforts were inadequate to protect these beautiful islands in the long-term.

Tim Pyner proceeded to give the third talk of the day, about the 2012 BPS field trip to the Blyde River Canyon Reserve in South Africa and the Golden Gate Reserve in the Orange Free State. Many interesting ferns were seen, too many to list here! However, notable tree ferns were *Cyathea dregei* and *C. capensis*. Tim commented that whilst *C. dregei* was difficult in cultivation in the UK, it was by far the most widespread tree fern in South Africa. He attributed this to its need for an abundant water supply. Several species of *Blechnum* were seen, including *B. tabulare*, *B. attenuatum* and *B. inflexum*. *Hymenophyllum capillare* was an attractive filmy-fern and many xeric ferns were recorded. *Actiniopteris radiata* and several species of *Elaphoglossum* and *Polystichum* were also found and excellently photographed.

After the AGM at the beginning of the afternoon, Paul Ripley told the meeting of the Group of European Pteridologists (GEP) trip to Corsica. One third of the island is national park and the group was based north of Bastia in the Cap Corse and later in the mountainous area of Monte Cinto. The island is mainly limestone. Many interesting European species were found, including *Woodwardia radicans* and several *Cheilanthes* species. However, as the trip progressed it became evident that a few of the group were particularly interested in *Asplenium obovatum*. Corsica did not fail to please, and several taxa were found including *A. obovatum* subsp. *protobilloti* and *A. obovatum* subsp. *lanceolatum*.

Alec Greening followed on with his account of time spent in Costa Rica, a country with a huge variety of ferns (and snakes) in the rainforests. Of the many ferns seen, he particularly drew our attention to the widespread *Ophioglossum reticulatum* and *Thelypteris angustifolium*. His quest was to find the xeric fern now known as *Gaga germanotta*, which he did at 3,300 metres. Enquiry into the origins of the name revealed that it came from the Kathleen Pryer group and that whilst *Gaga* referred to the GAGA amino-acid sequence, *germanotta* was, indeed, homage to the first name of the singer Lady Gaga!

Finally, Martin Rickard told us of his second trip to Ecuador with Paul Ripley, Klaus Mehlreter and Pat Acock. This visit was restricted to the high-altitude plain above the malarial areas of Ecuador. The number of ferns and other groups seen was remarkable, with fields of *Blechnum loxense* and *B. auratum* showing tree fern growth after surviving forest fires. Martin commented that many species of *Polystichum* were found but that the available Floras were inadequate to allow accurate identification. Of particular interest were the jamesonias, growing in full sun at altitude on the equator. Their adaptation to this environment had been to grow erect and with a dense covering of scales on the growing tip so as to avoid ultra-violet radiation damage. *Lophosoria quadripinnata* var. *contracta* was found, possibly growing in this upright form, rather than spreading, for the same reason as the jamesonias. The damp areas abounded in *Hymenophyllum* species, *Grammitis*, *Alansmia* and other ferns, creating an 'Elfin Forest'. Particular excitement was aroused by a *Dennstaedtia* with a frond at least 30 feet long and *Equisetum giganteum* rising to a height of 15 feet.

John closed the meeting with thanks to the speakers and an announcement that the next Annual General Meeting of the British Pteridological Society would take place in spring 2015 at Ness Botanic Gardens in the Wirral.

CULTIVAR MEETING, THE SAVILL GARDEN, ENGLEFIELD GREEN, SURREY – 21 June

Mark Border

(Leader: Julian Reed, with help from Mark Border & Peter Tindley)

Around 23 of us, from all corners of the country, met at The Savill Garden, Windsor Great Park, for what proved to be a fascinating meeting. We had a quick briefing in the lecture hall. The Garden was originally started by Sir Eric Savill in 1932 within the Crown Estate. It is a beautiful garden in a lovely setting with a wide range of rare and unusual cultivars and species, including a lot of Christopher Fraser-Jenkins' ferns.

We headed down to the Hidden Gardens, passing some wonderful *Osmunda regalis* clumps. Squeezing through a narrow path between large shrubs we reached the Fern Dell, the main collection of cultivars, where we were to confirm or correct some of the labelling. Usually in these reports there follows a list of the ferns seen, however, this collection is so large that I will just mention a few that 'leapt out' at me. The first group of ferns here were four plants of *Polystichum setiferum* 'Dahlem', the largest showing remarkably deltoid fronds – I would love to try some spores from it! Another *P. setiferum* cultivar that particularly



photo: M. Border

The Savill Garden

Peter Tindley, Yvonne Golding, Andrew Leonard,
Gert-Jan van der Kolk, Julian Reed, Nick Hards,
Barrie Stevenson (*behind*), Eleanor Hards, Jude Lawton

impressed me and that I had not come across before was 'Canaerfon', a fine divisilobe form. A cultivar of *Dryopteris filix-mas* that I am fond of is 'Decomposita', and this year I had been wondering about the possibility of mixing spores with a crested form to try to produce a crested 'Decomposita'. Well, just beyond 'Canaerfon' was my fantasy fern: *D. filix-mas* 'Gracile'! A species that caught my attention in this area was *Adiantum hispidulum*, not exactly thriving, but judging by its size it had been there some years.

Just beyond the dell, ferns were mixed in with some splendid arisaemas and many other plants. One fern that caused much interest was a superb clump labelled *Onychium cryptogrammoides*, a name I later found was a synonym of *O. contiguum* – a fantastic plant under any name.

By now it was getting towards lunch-time so we made our way back via various routes. After refreshments we met back in the lecture hall and I gave a short talk on some of the cultivars in my garden. This was rather daunting as I was only expecting eight or nine people to be present and also because the second part of the talk was about plants propagated from plants originally bred or found by Martin Rickard, who was in the exceptionally knowledgeable audience! I survived. Julian then gave a most interesting and well received talk on some of his breeding, concentrating mainly on 'scollies', especially *Asplenium scolopendrium* 'Saggitto-projectum' of which he had some great photos.

Most of us then headed out to the edge of the gardens to see a second large planting of *Polystichum setiferum* 'Plumosum Bevis' (we had seen some just outside the Dell). An interesting discussion developed around the unexpected differences to be seen from what is supposed to be a single clone. Two possibilities were discussed, firstly, that some may be descended not from the original clone but from some of the plants produced from the first spore sowings made by C.B. Green and Druery, and secondly, that micropropagation methods were responsible, though Julian later commented that 'Bevis' plants at Savill are unlikely to have been micropropagated. I feel there is a potential *Pteridologist* article here and I look forward to reading it!

We returned to the car park for the traditional plant swap and home. We would like to thank the staff of The Savill Garden for their kindness to us, especially Harvey Stephens for all his organisation and care. Massive thanks to Julian for the hard work he put into arranging this event. I know how worried he was that it would not be a success. It was a fantastic day and one of the most enjoyable meetings I have attended.

AUTUMN MEETING, CHELSEA PHYSIC GARDEN, LONDON – 5 October

John Edgington

Mary Gibby was our host for the Society's first visit to Chelsea since 1999. On a lovely autumn day about fifty members enjoyed talks on the history of the Garden and its ferns, and the opportunity to see how it had developed since its founding by the Apothecaries Company in 1673 and its subsequent purchase, with the rest of Chelsea, by Sir Hans Sloane, of which more below.

The Head Gardener, Nick Bailey, and Tom Wells, gardener and plant records officer (and BPS member), had prepared a list of over one hundred ferns (more than 60 species) cultivated at Chelsea, with a challenge to find more. First, though, we joined Nick under Sloane's statue for an entertaining and informative tour of the flowering plants. The Garden's primary object is the cultivation of useful and medicinal plants, the latter arranged geographically in the Garden of World Medicine. Nick took us from foxglove *Digitalis purpurea*, introduced to medicine by William Withering in 1785, via cannabis *Cannabis sativa* (the largest specimen some of us had seen, grown here quite legally), to a variety of plants currently being investigated for pharmacological use. Passing some fine specimens of angel's trumpets (*Brugmansia*), the source of atropine and among the most poisonous plants known, and the 'alcohol bed' growing, seemingly, every fermentable plant known to man, we arrived at the Garden of Edible and Useful Plants. Species here included prickly



photo: A.M. Paul

Chelsea Physic Garden

Bridget Laue, Michael Radley, Andrew Leonard,
Roger Norman, Nick Bailey, Roger Golding, Mary Gibby,
Janis Antonovics, Fern Alder, Dawn Isaac

pear (*Opuntia* spp.) whose thorns were once used as gramophone needles, cotton (*Gossypium*), sunflower (*Helianthus*) whose ability to absorb heavy metals and actinides led to its use for soil remediation at Chernobyl, and innumerable others. Nick finished by outlining his plans for the woodland area and monocot beds, before directing us to the Cool Fernery where they grow the majority of the ferns and some less hardy angiosperms (I noticed *Fuchsia procumbens*, a New Zealand species whose flowers, uniquely for a fuchsia, face upwards rather than droop).

The Fernery occupied us for the rest of the morning. It housed a range of native ferns including *Polypodium* and *Asplenium scolopendrium* cultivars, hardy and semi-hardy non-natives such as *Pellaea rotundifolia*, *Phegopteris decursive-pinnata*, *Dryopteris cycadina*, *Onoclea sensibilis*, *Polystichum monotis* and *P. acutidens*, creeping rhizomatous plants (*Davallia canariensis*, *Phymatosorus diversifolius*), and more tender species such as *Platycerium bifurcatum*, *Todea barbara* and *Psilotum nudum*; several, including *Polystichum acutidens* and *Polypodium leiorrhizum*, were new to me. *Dicksonia fibrosa*, *D. squarrosa* and *Cyathea australis* were grown indoors, while in the Thomas Moore Historical Beds outside the Fernery were more tree ferns (*C. cooperi*, *C. medullaris*, *Dicksonia antarctica*), *Matteuccia orientalis*, *M. struthiopteris*, *Woodwardia unigemmata* and some *Osmunda* and *Dryopteris* cultivars, amongst more British natives (to which I was able to add *Dryopteris dilatata* that had arrived uninvited by the south wall of the Garden). Within the Fernery a large Wardian Case contained the rare Madeiran endemic *Polystichum*

drepanum, *Leptopteris hymenophylloides* from New Zealand and its hybrid with *L. superba*, *Hymenophyllum tunbrigense*, and the highlight of Chelsea's collection, an enormous colony of *Trichomanes (Vandenboschia) speciosum*, robust plants that genetic analysis had shown to have originated from two separate introductions to the Garden.



photo: A. Leonard

Thomas Moore Fernery, Chelsea Physic Garden

After lunch Mary Gibby gave a fascinating talk on the Garden's history. Sloane, who had purchased the manor of Chelsea in 1712-13, agreed to lease the land on which the Garden stood to the Apothecaries Company in perpetuity for the sum of £5 per annum, on condition that each year the Company present 50 plants to the Royal Society (of which he was President) up to a total of 2,000. The first fern to be supplied was *Asplenium adiantum-nigrum*, presented in 1736. The obligation was met beyond its formal end until 1799, and the ferns so supplied included, amongst others, *A. scolopendrium* (and some of its varieties), *A. ruta-muraria*, *Blechnum spicant*, *Cystopteris fragilis*, *Cryptogramma crista*, *Ophioglossum vulgatum*, *Osmunda regalis*, *Polystichum aculeatum*, *P. setiferum* and, curiously, *Diphasiastrum alpinum*, not a likely plant to have been cultivated at Chelsea and perhaps of wild origin. All these specimens, labelled with their presentation number, are now in the Natural History Museum's herbarium. They include *Polypodium cambricum* 'Richard Kayse', the original laciniate form (identified as such by Martin Rickard) apparently given to Sloane by Philip Miller. Miller was Gardener from 1722 to 1770, author of *The Gardener's Dictionary* and one of the most celebrated and influential botanists of his time.

Miller introduced a great number of exotic plants to England, cultivating them at Chelsea and distributing them widely. Perhaps better known to our Society was Thomas Moore, Curator for an almost equally long period (1848-1887) and author of, among many other books, *The Nature Printed British Ferns*. Moore popularised the Wardian Case, which for the first time allowed living ferns to survive the long sea journeys from India and other outposts of the Empire. The Cool Fernery and beds outside it are named after him.

Moving on to the twentieth century, Mary described the close links between the Physic Garden, where the cytology of living plants was studied, and the Natural History Museum. As an undergraduate and graduate student Mary had worked with Clive Jermy on *Dryopteris carthusiana* and *D. dilatata*, and as a postgraduate she used the facilities at Chelsea to continue to investigate the relationships between these tetraploid taxa (including *D. cristata*) and their diploid ancestors. Subsequently, with Christopher Fraser-Jenkins, Mary used the facilities to study the Macaronesian species and their hybrids. The most recent fern studies involving Chelsea were Johannes Vogel's investigation of the origin(s) of *Asplenium adulterinum* and other European aspleniums, and molecular studies of gametophyte and sporophyte generations of *Trichomanes speciosum* with Fred Rumsey, which link neatly back to Moore's Wardian Case in the Cool Fernery.

Many members stayed on for Andrew Leonard's demonstration of an on-line recording facility available via the BPS website, which engendered considerable discussion. Many thanks to Mary for an absorbing meeting.

POLYPODIUM DAY AT KYRE, WORCESTERSHIRE – 11 October

Martin Rickard

Unfortunately I forgot to ask anyone to write up this event so reluctantly it falls to me!

Forty members and friends had a look around my fern collection after a welcoming cup of tea/coffee at the nearby village hall. I always call this a fern collection, not a garden. There are few non-ferns and there is no real design, however, I do have a lot of ferns, especially polypodiums. In a recent list I found I had over 140; some would be duplicates, but from separate sources. Touring the garden with such a large group was impossible, so we split up, but a few hardy souls kept within earshot and listened to what details I could offer about the more interesting plants. For many years highlights for me have been some of the older cultivars, such as 'Grandiceps Forster', 'Pulcherrimum Addison', 'Elegantissimum', 'Jean Taylor', 'Supratoriferum', 'Trichomanoides', 'Cristatum', 'Omnilacerum Oxford', etc. as well as all the forms of 'Cambricum'. Remarkably, quite a few interesting new cultivars have been found and exciting new breaks raised from spore. In my garden I have all of my wild finds, the principal ones being 'Corkscrew', 'Grandiceps Gill', 'Isabella' (I was with Jim Dennison when he found it) and 'Furco-Cristatum'. All of these are crested forms of *Polypodium australe* [*P. cambricum*] and all, except 'Grandiceps Gill', were found in Ireland. These caused quite a stir and more people wanted pieces than I could afford to part with at this stage.



photo: J.P. Reed

***Polypodium australe* 'Furco-Cristatum'**

In parallel with my garden tour, the greater attraction was ferns for sale brought in by Bob Brown, and Roger and Sue Norman. I think they did a very brisk trade. Unfortunately, through my mistake, Angela Tandy of Fibrex Nurseries missed this window, however, she more than made up for it with a fine range of polypodiums offered during the lunch break. I do not believe many people went home empty-handed!

Back in the village hall, over lunch prepared by Catherine Swain and Hazel Bows, Julian Reed displayed some of his incredible new raisings, apparently all from 'Grandiceps Forster'. They are a bit along the lines of 'Cristatum Trippit', but much more heavily crested. I have tentatively named two of these 'Grandiceps Reed' and 'Pulcherrimum Cristatum Reed'. Guests for the day, Andy Byfield and Matt Bishop (of snowdrop fame), brought along a fine cornute form. This they have named 'Truncatum Savage'.

After lunch I gave a talk on various diverse issues within the world of garden polypods. My principal point was the problem of identifying the various forms of 'Cambricum'. I have become less sure of the names for these clones over the last 40 years; the more I discover the more difficult I find it to be positive. I know this frustrates people, but I showed five slides of 'Cambricum Prestonii', all from a few years after its discovery and each one completely different from the other. I got the feeling that there was some sympathy for my vagueness after this! Among other points I discussed was the weevil damage very common on most ferns, but particularly polypodiums. I showed slides of the whole life-cycle and Ashley Basil set up a binocular viewing system so everyone could see the one adult Australian fern weevil that I have so far found. Sadly I have found hundreds of their larvae and eggs. I have written a fuller account of this very important pest for the next *Pteridologist*.

After more teas most of us returned to the garden for a fuller investigation, and in quite a few cases acquisition of special fern material. Throughout the day various members brought in plants to give away, and Brian and Sue Dockerill distributed plants rescued from the collection of Ivor Price, a frequent attendee at the South Wales and the Borders regional meetings, who died recently. I don't think anything was left over!

I had planned to exhibit my herbarium of polypod fronds, collected over the last 40 plus years, and to give people a chance to look at and discuss fern books and fern decorative arts, but there just was not enough time!

REGIONAL MEETINGS

CORNWALL & DEVON

Ian Bennallick

Lizard (10/61), West Cornwall – 26-27 April

Over ten people attended this weekend, surviving atrocious stormy weather on Saturday and cool but sunny weather on Sunday. The aim of the weekend, organised by David Pearman (BSBI) and Fred Rumsey (Natural History Museum and BPS), was to make a detailed survey of land quillwort (*Isoetes histrix*). The Lizard holds the only mainland British populations of this elusive species, and the last comprehensive survey was by the University of Bristol in 1982, when the population was counted and estimated to comprise nearly 100,000 plants. Since then David Pearman and several other local and visiting botanists have counted or estimated *I. histrix* plants at some sites. Our plan was to visit as many as possible of the known *I. histrix* sites and to count actual plant numbers using the University of Bristol surveyors' methodology. On Saturday we visited the Holestrow, Caerthillian, Kynance and the Rills sites, and on Sunday the Mullion, Predannack and Kynance Farm, Gew Graze to Vellan Head sites, all in 10/61. Over 20,000 plants were counted! This was substantially fewer than in 1982, but many more than the 4,410 plants counted in (incomplete) surveys between 2010 and 2013, and there was not enough time to visit inland and eastern Lizard populations. A detailed report of the weekend will appear in the 2015 *Pteridologist*.

Hustyn Wood, North-West of Bodmin, East Cornwall (10/96, 20/06) – 10 May

Six members met at Hustyn Wood in the Camel Valley and enjoyed a walk around deciduous woodland, conifer plantations, forest rides and along streamsides in one-kilometre squares 10/9969 and 20/0069. Nineteen species of fern in total were seen on the walk. Much of the conifer plantation in the Hustyn area was planted on rough ground or heathland in the early part of the twentieth century (there are old records of fir clubmoss (*Huperzia selago*) here), and many heathland species are still present along open rides through the woodland. In the steep valley where ancient woodland is still found, Tunbridge filmy fern (*Hymenophyllum tunbrigense*) was last recorded in 2004, and two large patches were refound on a rock and a tree root by the stream in Belman's Park Wood 10/9988.6923. Those

wearing wellingtons were well prepared but at least a couple braved the rushing water in walking boots and were thoroughly sodden! *H. tunbrigense* is also found further upstream and downstream but we ran out of time to look for it. Nearby in a wet wood several large royal fern (*Osmunda regalis*) were admired, and amongst these were a few narrow buckler fern (*Dryopteris carthusiana*). Two *Dryopteris* plants were tentatively named as *D. × deweveri*, the hybrid between *D. carthusiana* and broad buckler fern (*D. dilatata*).



photo: J. Swift

Hymenophyllum tunbrigense site, Hustyn Wood

Perry Smale (left) & Trevor Webb (right) wading to get the best shots!

D. carthusiana is local in Cornwall but is often growing near, or with, the much commoner *D. dilatata*, and *D. × deweveri* has been noted in other Cornish *D. carthusiana* sites and is probably under-recorded. On the way back to the cars, a steep climb up Hustyn Hill, hay-scented buckler fern (*D. aemula*) was abundant on the shaded moist hedge-bank.

At the end of the day four of us drove a short distance about one kilometre north-eastwards and then down to the River Camel at Polbrock (20/013695) and parked in the small Forestry Commission car park at Bishop's Wood. Here we looked along the shaded vertical muddy riverbank, stabilised with tree-roots, where there were substantial stands of diaphanous bladder fern (*Cystopteris diaphana*). First found here in 2000 by Matt Stribley, it was easy to see how it had remained hidden – in the winter it is under water when the River Camel levels rise, and even in summer one has to get into the river to see it. We also checked the small adit on the wooded bank by the car park, where a small sporophyte plant of Killarney fern (*Trichomanes speciosum*) was first seen in 2004 by Ian Bennallick. Unfortunately, in the wet winter of 2013/2014, the adit entrance had collapsed taking the plant with it. However *T. speciosum* gametophyte is still present so there is a chance that a sporophyte will appear again.

Port Gaverne, North of Wadebridge, East Cornwall (20/08) – Thursday 15 May

A gloriously sunny day by the Cornish coast greeted three members of the group at the Cornwall Council car park at Port Isaac (10/999810). We met up with Malcolm Lee, who lives in the old converted fish cellars in Port Gaverne just to the east of Port Isaac, and is a mine of information about the local area. We walked onto Main Head (20/0081) where we found many plants of sea spleenwort (*Asplenium marinum*) along the cliffs. From the delightful harbour at Port Gaverne (20/0080) we walked inland along a small valley with marshy areas and a tree-lined stream where we saw four horsetail species – field, marsh, water and shore (*Equisetum arvense*, *E. palustre*, *E. fluviatile* and *E. × litorale*).

The fern highlight of the day was an *Asplenium marinum* plant with very narrow fronds, which Ian Bennallick found on the wall of the old fish cellar in the village, growing with black spleenwort (*A. adiantum-nigrum*) and with wall rue (*A. ruta-muraria*) nearby. The narrow-fronded *A. marinum* had a look of *A. ruta-muraria* about it, and Ian pondered whether it could be a hybrid between the two species. Later correspondence with Fred Rumsey and Chris Page suggested that this was unlikely, though Chris thought it merited further investigation. Fred commented that “[*A. marinum*] has no hybrids – [and is] only distantly related to the other European *Asplenium* spp.” Chris also noted that “*A. marinum* appears not to be a variable species”. Pending further investigation the plant is best treated as a rare variant. Martin Rickard reported that “none of the old Victorian cultivars seem to fit your plant so I would suggest this could be called *A. marinum* ‘Lineare’ ”. It is hoped that if a frond with spores can be collected in 2015, a final decision on its identity can be made.



photo: I.J. Bennallick

Asplenium marinum ‘Lineare’,
Port Gaverne

Landulph & Cargreen, North of Saltash, East Cornwall (20/46) – Sunday 20 July

Four members met at Cargreen (20/4356.6267) in the car park of a closed pub, and recorded rustyback (*Asplenium ceterach*) and southern polypody (*Polypodium cambricum*) on the village walls, which have lime-rich mortar. We headed south along a public footpath along the edge of the Tamar estuary from Cargreen 20/4362 to Landulph 20/4361. Unfortunately the tide was coming in so we had to walk quickly, but eventually ran out of a negotiable (dry) path, so climbed up the low cliff and walked along the field edges of the wooded low cliff. One of the aims of the day was to search for *Asplenium marinum*, last seen at Neal Point in 1998. Luckily a path down to a small beach at Neal Point was open, and at least 100 plants were found growing on a shaly low cliff.

The other aim was to check an old brittle bladder fern (*Cystopteris fragilis*) record for Landulph, which was made in 1935 by C.P. Hurst who noted it on a 'rock by the Tamar'. Recent discussions between the local BSBI recorders and Fred Rumsey had concluded that *Cystopteris fragilis* was unlikely to be native in Cornwall, so it could either have been an introduction at Landulph in Hurst's time (there is a high proportion of introduced plants in the vicinity of the vicarage) or it could have been *C. diaphana*, which does occur as a native species on a riverbank and other humid places in Cornwall (though it has also been recorded as an introduction). Despite the high tide preventing some access, various rocky places were searched, though without success. A further search at low tide will be made in 2015.

Stannon Pit, Bodmin Moor, East Cornwall (20/18) – Tuesday 2 September

This meeting was organised with permission of South West Water (SWW) who own the old china clay works at Stannon Pit. This lies in the shadow of Cornwall's second highest hill, Rough Tor, on the north side of Bodmin Moor. Our guides were Ian Davies and Tania Percy-Bell, who monitor the site for SWW and allowed us to record in the inaccessible parts of the under-recorded one-kilometre squares 20/1280 and 20/1281. Seven members met at the entrance to Stannon Pit 20/1230.8011, and Ian and Tania escorted us through three locked gates. Mining activities ceased in 2002 when SWW bought Stannon Pit from Imerys, and the former moonscape of china clay workings with quartz sand spoil heaps and clayey mica dams had slowly reverted to thin grassland, heath and scrub through restoration and natural colonisation. The large flooded pit, the second largest reservoir in Cornwall, is 60 metres (200 feet) deep and holds eight billion litres (1.8 billion gallons) of water. The open tracks and ditches surrounding the pit included species of acid grassland and heath with hard fern (*Blechnum spicant*), lady fern (*Athyrium filix-femina*) and *Dryopteris dilatata* common, and along a ditch were a few lemon-scented ferns (*Oreopteris limbosperma*). In two settling pools *Equisetum fluviatile* and *E. × litorale* was frequent.

However, the highlight for the day was finding a patch of marsh clubmoss (*Lycopodiella inundata*) (new to 20/18) in an open sandy area beside the flooded pit at 20/125812, growing amongst frequent *Polytrichum* sp. (a moss), velvet bent (*Agrostis canina*), heath rush (*Juncus squarrosus*), mat-grass (*Nardus stricta*), ling (*Calluna vulgaris*) and round-leaved sundew (*Drosera rotundifolia*). Interestingly, Stannon Pit was bought by SWW at the same time as Park Pit, the other former china clay works where *Lycopodiella inundata* was discovered in 2012. In the report of that discovery at Park Pit in the *BPS Bulletin* (2012) 7(5):410, I noted that "The colonies of *Lycopodiella inundata* and *Lycopodium clavatum* at Park Pit have shown that it is worth searching open 'pioneer' sites, of which there are many in Cornwall created from mining works, especially in the china clay area, in case there are other populations of these clubmosses in Cornwall." The discovery at Stannon Pit has shown that searching disturbed sites on china clay waste undergoing pioneer colonisation is paying off.

NOTE: Unauthorised access to the SWW-owned Stannon Pit and Park Pit is NOT ALLOWED so if anyone wishes to visit this site please contact Ian Bennallick in the first instance.

EAST ANGLIA

Winter Indoor Meeting, Southend, Essex – 25 January

Peter Blake

Twenty-three members met at Tim Pyner's House in Southend. Although programmed as an indoor meeting, members could not resist looking round Tim's garden of ferns and exotic plants. After a very wet two months, the garden was saturated but the lack of frost meant that many plants were still in good form. In particular Tim's collection of xeric ferns in sink-gardens, protected by cloches when there was a risk of persistent rainfall, were in excellent condition.

Moving indoors, Martin Rickard entertained the group with a well-illustrated and fascinating account of a trip to Ecuador with Pat Acock, Paul Ripley and Klaus Mehlreter in September 2013. Martin had passed through this area of the Andes, between Quito and Cuenca, on an organised botanical tour two years previously. However, this trip was more fern-oriented and the wide variety and numbers of ferns seen made it well worthwhile. The altitudes studied varied between 1,500 metres and 4,200 metres, with ferns being found as high as 4,170 metres. At lower altitudes many varieties of filmy ferns were found and also a wide range of elaphoglossums, some of which showed adaptation to high UV levels by vertical growth, scaly covering and phototropism. Several species of *Jamesonia* were also found.

After tea, with sandwiches and cakes, Martin concluded his talk and discussion took place about a possible BPS field-trip to Ecuador in the future. It was noted that many of the places visited had limited accommodation and a trip through several locations would probably not be possible for a large group. However, Ecuador remains an attractive destination for those interested in ferns and other exotic plants.

Cambridge University Botanic Garden – 7 June

Tim Pyner

This turned out to be a popular meeting, with a total of 23 members including several attending for the first time. Staff at the gardens, in particular Paul Aston, have recently begun to enhance the fern displays both inside and out. Paul had originally suggested this meeting and was to be our guide for the day. We started at the new outdoor fernery, located at the northern end of the glasshouses and shaded by a large cork oak. Planting had begun in 2012 following installation of an irrigation system. Despite some very cold temperatures during the first winter the ferns were thriving, with several unexpected and unusual species having survived, in particular a large *Culcita macrocarpa* that must benefit from the regular irrigation. Other interesting species included *Polystichum drepanum*, *P. vestitum* and *P. proliferum*, *Pyrrosia polydactylos*, *Woodwardia prolifera*, *Doodia maxima* and, very surprisingly, several small plants of *Osmunda vachellii*. Several trunked *Dicksonia antarctica* were also looking in excellent condition. Future plans include establishing epiphytes onto the cork oak trunk and the installation of interpretation boards.

The group then separated and while one half looked round the glasshouse ferns the second was given a tour behind the scenes including Paul's propagating areas. Paul gave a fascinating insight into his work and his experiments in growing various ferns from spores and



photo: B.D. Smith

Cambridge Botanic Garden

Tim Pyner & Paul Aston

also trying more tricky subjects such as *Huperzia selago*. There were also various tropical species here that were not seen elsewhere in the gardens. The glasshouses also held many interesting species including *Acrostichum aureum*, *Stenochlaena tenuifolia*, *Blechnum brasiliense* and *Asplenium oblongifolium*. The tropical area had superb plants of *Davallia pentaphylla* and *Davallodes hirsutum* among many other rarely seen ferns. The filmy fern house was relatively disappointing, however, exciting plans are in the pipeline for a complete refurbishment. After lunch members were able to explore the gardens at their own pace and view the many interesting plants as well as other ferns in the woodland area including gigantic plants of *Osmunda regalis*.

Following the meeting a few members were able to take up the offer of tea at the garden of long-standing member Margaret Nimmo-Smith. They were able to view Margaret's collection of ferns and received excellent refreshments.

I would like to thank Paul and his colleagues for suggesting and leading this meeting. I recommend that members visit frequently to view the development of the ferneries and support the work being carried out to increase awareness of ferns.

Stonemore Wood, Highwood (52/6301), & Galleywood Common (52/6902 & 7002), South Essex – 6 September

Tim Pyner

This visit, our second recent joint meeting with the Essex Field Club, took place on a mild, cloudy and windless day. Seven BPS members and six from the EFC set out in search of *Dryopteris affinis* agg. and hybrids. The BPS members were tasked with passing on their expertise and knowledge to the EFC members and in most cases we succeeded. We also hoped to refind some species not recorded recently from Stonemore Wood and in this case we accomplished far more than I expected. This wood is one of several fragments of the once extensive Writtle Forest that remain in the Highwood-Writtle area. Most are too dry for good fern habitat but in Stonemore Wood several springs drain down shallow slopes into a stream and here extensive colonies of ferns are present. The wood is on a ridge with gravelly acid soil, and bracken (*Pteridium aquilinum*) is abundant in the drier areas.

The group entered the wood and immediately found a large, odd looking fern growing with male fern (*Dryopteris filix-mas*) and broad buckler fern (*D. dilatata*). After due examination it was pronounced that it was perhaps a *D. filix-mas*/*D. borrieri* hybrid. However, later microscopic examination revealed good spores so it was only an odd male fern. Several male ferns were showing the dark marks at the base of pinnae that can occur in late season – even more fun when trying to come to a conclusive identification. Moving onwards down slopes lady fern (*Athyrium filix-femina*) started to appear and Pat Acock found a couple of hard ferns (*Blechnum spicant*) in a ditch. The latter is rare in Essex but had been recorded previously in Stonemore Wood and was one of our target species. A few plants were seen later but it appeared to have declined significantly in recent years. Arriving at the stream we started to find *Dryopteris borrieri* amongst abundant *D. filix-mas* and *D. dilatata*. *D. borrieri* was occasional but in one place a dense colony of about 20 plants grew along the stream. Occasional plants of narrow buckler fern (*D. carthusiana*) were also present. We eventually reached a small, marshy clearing with many large *Athyrium filix-femina* and a few hard ferns. Here Howard Matthews spotted the top find of the day, a large lemon-scented fern (*Oreopteris limbosperma*) (52/637019). Further searching revealed two more large plants. This fern is extremely rare in Essex with only one plant currently known elsewhere. It was last recorded in this area in 1971 and is an important re-discovery for the county.

After lunch we set off for Galleywood Common to search for wood horsetail (*Equisetum sylvaticum*), which is rare and declining in Essex; this site used to be the best in the county. The BPS last visited in 2004 and since then reports had been received that the colony had declined substantially. On reaching the site (52/699026 to 700026), although we refound plentiful stems of the horsetail, brambles, bracken and reedmace were dominating the bog and trees were encroaching. The whole site appeared to be drying out and it remains to be seen how

long the horsetail can survive here. Also here were some large plants of *Athyrium filix-femina* and *Dryopteris carthusiana*. The latter plants aroused suspicions that they could be hybrids with *D. dilatata* but this could not be confirmed as the spores had all been shed. Upon re-reading the 2004 report in the *Bulletin* I found that the same discussions took place back then.

We made one further stop at nearby Temple Wood to check out a large colony of *Polypodium* (52/707005). Polypodiums are scarce in Essex and this colony is one of the larger ones, covering about six square metres. Its identification remains uncertain, as although it matched *P. × mantoniae* in most characters, the ratio of normal to abortive spores did not seem right, with a larger number of apparently normal spores being present than expected. Investigations are ongoing.

Autumn Meeting, Southend, Essex – 18 October

Tim Pyner

Due to Gill and Bryan Smith being away, we changed our venue to Tim Pyner's house in Southend. Seventeen members attended and fortunately the weather was fine so there was plenty of time to wander round the garden looking at the ferns and other plants. Our programme was rather different this year and instead of several contributions Paul Spracklin offered to talk about his trips to Mexico. Paul had visited Mexico on six occasions, mainly looking for succulents and other xerophytic plants. However, an increasing interest in ferns enabled him to present a very appetising introduction to Mexican pteridophytes. Mexico is a large country with an extremely varied climate. In the drier areas species of *Cheilanthes*, *Notholaena*, *Pellaea* and *Astrolepis* are common and we were shown a good range of different species. There are also large areas of forest, from subtropical through dry warm temperate to subalpine. All these forest types have a varied and rich fern flora. Most fascinating pteridologically is the El Cielo Biosphere Reserve in Tamaulipas state. This is the most northerly cloud forest in the western hemisphere and would be a fantastic place to visit. Paul's talk provided us with many interesting snippets ranging from Mexican culture to the biology of *Agave* and *Yucca*. We thank Paul for introducing us to Mexico and I am sure a few others besides me are keen to follow in his footsteps.

MANCHESTER AND NORTH MIDLANDS

Froggatt & Coombs Dale, Derbyshire – 24 May

John Grue

(Leader: Henry Folkard)

One of the glories of botanising in England is the variety of plants we can see on adjoining geological structures. Another is the variety of weather. We experienced both.

Seven of us, Henry Folkard, John Grue, Yvonne Golding, Roland Ennos, Sue and Ken Seal, and Paul Ruston, met at the National Trust car park (43/257776) near Froggatt Edge. The forecast rain was just beginning. The rock here is Millstone Grit, a coarse siliceous sandstone yielding acidic soils. We set off down the hill towards the west through Hay Wood. Immediately we met *Pteridium aquilinum* and *Dryopteris dilatata*. As the rain intensified we followed the



photo: Y.C. Golding

Hay Wood, Derbyshire

John Grue with *Dryopteris affinis* agg.

path down through ancient woodland by the beautiful tumbling waters. Several plants of *Athyrium filix-femina* grew next to the stream. Our next find was *Oreopteris limbosperma*; this seldom lives up to its sobriquet of lemon-scented fern, especially when the weather is cold and wet, but today the fragrance was clear. Our next fern presented an ethical dilemma. It was clearly a *Dryopteris affinis sensu lato*. Several of us had our new BPS 'affinis' handbooks, but who was going to bring theirs out in torrential rain? Fortunately one member had an original Ken Trewren leaflet to sacrifice and we were soon able to decide that it was a *D. borrieri*. These were numerous, and it was easy to spot the more occasional *D. affinis*. Next was *Blechnum spicant*. We reminisced about other more exotic blechnums that we had met.

We crossed the stream and entered the very wet Hay Field. As we sloshed down the field, more and more *Equisetum* appeared. The plants of *E. sylvaticum* became larger and larger. They were very beautiful under their burden of raindrops. As the ground became even wetter *E. arvense* appeared.

At 43/247773 we set off steeply up the hill towards Froggatt Edge. There was a lot more *E. sylvaticum*, but nothing new until we were approaching the road at the Climbers' Club hut, where the road dust influence gave us *Asplenium scolopendrium*. Our climb took us to Froggatt Edge, Downe's Buttress with fine *Dryopteris dilatata*, *D. filix-mas* and *D. borrieri*. We scrambled leftwards to the top and set off along the path towards the top of Froggatt Brook.

Henry skilfully rigged a knotted rope for the descent to reassure those of a timid (by BPS standards) disposition. This had the inevitable result of discouraging several from trying at all. Those of us who ventured the scramble were rewarded by a lovely patch of *Gymnocarpium dryopteris*, here at the south-east edge of its range. We peered into various holes, knowing that the gametophyte of *Trichomanes* had been found somewhere here, but to no avail. After a quick visit to Stoke Flat stone circle, we returned to the car park and drove down to Calver, on the boundary between the gritstone and the Carboniferous Limestone.

Unable to resist the attraction of one of the best alpine plant nurseries in England we were presented with a further ethical dilemma. There was a plant of *Asplenium ruta-muraria* growing on tufa in the nursery, and nearby was *Cystopteris fragilis*. Steve Furness, the proprietor, told us they were self-sown. Should we record them? Did they 'count'? (We were told of adder's tongue elsewhere in the beds.)

After teas at the nearby café we set off walking to the limestone Coombs Dale (43/237751) as the sun shone. The low crags at the entrance to the dale gave *Asplenium trichomanes* subsp. *quadrivalens*, *A. ruta-muraria*, *A. scolopendrium*, *Polystichum aculeatum*, *Cystopteris fragilis* and a lot of *Dryopteris filix-mas*. In the wet soils at the base of the crags was *Equisetum arvense*. Further into the dale we reached an area of typical limestone grassland altered by lead mining. We searched the edge of a lead-rich scree for *Botrychium lunaria* and were rewarded by finding significant numbers of these (a first for some of the group). A few metres to the east we met with one of the finest displays of limestone ferns any of us had ever seen. There were enormous numbers of *Gymnocarpium robertianum*, growing in scree and along fissures in the low cliffs. They were accompanied by bladder ferns, wall rue and common maidenhair spleenwort.

As we walked back down the dale we found *Polypodium vulgare* growing epiphytically on an elder. The crags yielded more *Polystichum aculeatum* and *Asplenium ruta-muraria* plus *Polypodium interjectum* (we thought – friable rocks put it out of safe reach.) Finally, a patch with both *Equisetum palustre* and *E. arvense* prompted a search. We were rewarded with a hybrid but it turned out not to be *E. × rothmaleri* but the commonest *Equisetum* hybrid *E. × litorale* (showing a rather hollow stem T.S.), suggesting that *E. fluviatile* might also be in the area. This was quite likely as we had been told by Steve from the alpine nursery that there were six horsetails in the area. By then it really was time to go home. A satisfying end to a day of variety.

NORTH-WEST

Roudsea Wood & Mosses NNR, & garden ferns at Levens, South Cumbria – 28 June

Mike Canaway

A good turnout of 15 members met at the reserve car park (34/329826) where walk leader, Alec Greening, provided Natural England permits to enable us to park and access the reserve. After Alec's briefing on the plans for the day, including directions to the afternoon's garden visit, we immediately started recording the ferns adjacent to the car park. These included: *Athyrium filix-femina*, *Blechnum spicant*, *Dryopteris affinis* subsp. *affinis*, *D. borrieri*, *D. carthusiana*, *D. × deweveri* (confirmed later), *D. dilatata*, *D. filix-mas*, *Oreopteris limbosperma* and *Pteridium aquilinum*. We then walked through the wood to Roudsea Tarn, which now consists of a bog traversed by a boardwalk from which we could admire the range of wetland plants present. Among the ferns were further plants of *D. carthusiana* and large *Osmunda regalis*. Some limestone outcrops bordered the edge of the tarn and near these (34/3325.8240) we encountered *Equisetum arvense* and *Thelypteris palustris* as well as the very rare sedge, *Carex flava*. On a limestone cliff nearby was *Asplenium trichomanes* subsp. *quadrivalens* and further into the woodland we encountered *A. scolopendrium*, *Phegopteris connectilis* and further colonies of *D. carthusiana*.

Next a search was undertaken for *Ophioglossum vulgatum*, which had been recorded during the group's previous visit in 2004. Unfortunately the adder's tongue was not to be seen but we were rewarded by a handsome display of orchids (*Dactylorhiza fuchsii*) and fairy foxgloves (*Erinus alpinus*) in the search area. Nearby, *Polypodium vulgare* was seen growing epiphytically on *Tilea cordata*. We moved from the woodland into an open area of wet lowland heath, Roudsea Mosses, with scattered *Pinus sylvestris* trees, dwarf shrubs such as *Myrica gale*, *Calluna vulgaris*, *Erica tetralix* and rarer angiosperms such as *Andromeda polifolia* and *Drosera intermedia*. Fern interest in this area was limited to occasional *Dryopteris carthusiana* although members were also on the lookout for the resident ospreys that breed on the site. Leaving the wet heath, Alec led us into drier woodland where he directed us to a cave entrance with *Polystichum aculeatum* and

Asplenium trichomanes subsp. *quadrivalens*. Some members ventured underground, eventually re-emerging and heading back to the car park for lunch.

In the afternoon we drove to Levens to view the fern collection in Chris and Shirley Band's garden. This not only had a large collection of garden ferns too numerous to completely list here but also was of interesting layout and composition – sufficient to merit its inclusion in 'open garden' days. Of note for me was the difficult-to-grow *Polystichum lonchitis*, however, the variety of ferns on show triggered some follow-up



photo: Chris Band

NW Group at the Band's garden

Denise Copson, Robert Sykes, Jesse Tregale (*behind*),
Mike Canaway, Robert Crawford, Ann Haskins, Steve Coleman,
Frances Haigh (*behind*), Alec Greening (*walk leader*),
Peter Campion, Michael Wilcox (*hidden*),
Alison & Chris Evans, Bruce Brown

correspondence between members who decided that a fine *Athyrium filix-femina* was possibly the rare 'Plumosum divaricatum' and a *Dryopteris* with orbicular-reniform sori confined to the upper pinnae was more than likely to be *D. lacera*. Mike Wilcox also spotted *Polypodium interjectum* growing in the lane nearby. The Bands kindly provided refreshments that were much appreciated; thanks to them for hosting the visit to their home.

Southport Botanic Gardens & Michael Hayward's Garden, Blundellsands, Merseyside – 5 July Michael Hayward

In the morning, six of us met up at Southport Botanic Gardens with Gary Manser, who is responsible for maintaining the fernery (PR9 7NB, 34/3096.0057). The fernery was opened in 1876 and underwent a major refurbishment and replanting in 2007-8. It was described in detail in the 2010 *Pteridologist*. Many of the tree ferns planted in 2008 had since put on considerable growth, particularly the *Cyathea medullaris*. There had been a few losses and a specimen of *Angiopteris evecta* had failed to make significant growth. The *Angiopteris* had been planted in a prominent position on a small promontory in the centre of the fernery, which had proved too dry a situation for it to thrive. *Marattia salicina*, planted in hollows, had no such problem. We had long discussions with Gary about the problems of adequately watering the fernery following staff cutbacks.

After lunch at The Hesketh Arms and a quick walk around the ancient village of Churchtown, we moved twenty miles south to visit Michael Hayward's Garden (L23 8TQ). Sited just over half a mile from the coast, the climate here is normally quite mild, but on 21st December 2010 the recorded temperature in the garden was -17°C, resulting in the loss of all the tree ferns. Several large *Dicksonia antarctica* had been replaced but all *Cyathea* plants were now grown in pots and over-wintered in the greenhouse. A large specimen of *Lophosoria quadripinnata* that had been cut back hard by the severe winter had recovered well, once again producing fronds over two metres in length. A large colony of *Blechnum unigemmata*, with the bulbils on the frond tips allowed to root *in situ*, had been little affected by the severe winter and its fronds were also up to two metres long. Colonies of *Pteris ambigua* and *P. cretica* had also recovered well. *Polypodium macaronesicum* and *P. azoricum* had both suffered from the cold and were now grown in large pots and over-wintered in a polytunnel. A number of raised beds had been built for selected plants. *Pteris wallichiana* and *Araiostegia* species were thriving in these beds without special protection. In all there were several hundred species and cultivars of ferns in the garden and greenhouse, the only outdoor ones receiving winter protection being the dicksonias.

The far end of the greenhouse was given over to a large floor-standing case, six feet wide, to house in pots a mature specimen of *Leptopteris superba* and one of *L. hymenophylloides*. Many small self-sown plants had been recovered from the pots, and this year systematic collection and sowing of the spores had been started. After tea a few members stayed on to peruse a collection of fern albums.



photo: A. Haskins

Fernery at Southport Botanic Gardens

Hutton Roof National Nature Reserve is a large and complex site part-owned and managed by Cumbria Wildlife Trust. At 270 hectares in size it consists of a complex mosaic of limestone pavements – some of which are said to be among the best in Britain, woodland, scrub, grassland and heath. The main aim of the visit was to see the long-lost *Polystichum lonchitis*, last seen here in 1957 until it was recently re-discovered by local resident, Bryan Yorke. To this end 19 members and guests met at Plain Quarry car park (34/552761) where walk co-leader, Alec Greening introduced us to Bryan and handed over the navigational aspects of our walk to him.



photo: P.J. Campion

NW Group members at Hutton Roof

Bryan Yorke (walk co-leader), Chris Evans, Charles Dale (hidden behind AG), Alec Greening (walk co-leader), Anne Dale (hidden), Mike Canaway, John Daffern, Robert Crawford, Mike Whittam, Mo Richards, Robert Sykes, Henry McGhie, Denise Copson, Andrew Harrison, Alison Evans, Ann Haskins, Trevor Pearce

Without further ado we set off into the reserve where we immediately saw *Asplenium scolopendrium*, *Athyrium filix-femina*, *Blechnum spicant*, *Dryopteris borrieri*, *D. dilatata*, *D. filix-mas*, *Polystichum aculeatum* and *Pteridium aquilinum*. On a small cliff nearby were *Asplenium trichomanes* subsp. *quadrivalens*, *Cystopteris fragilis* and *Polypodium vulgare*. Walking across an area of limestone rocks punctuated by sections of pavement yielded *Asplenium ruta-muraria* and *Dryopteris submontana*, which grows extensively throughout the reserve. Further beautiful and large *Polystichum aculeatum* plants were observed in the limestone pavement grykes as we walked up towards the trig point high on the reserve. Bryan showed us examples of *Asplenium viride* in a solution pocket on pavement near 34/5553.7764 and again near 34/5554.7765. This species had not been recorded on Hutton Roof for at least ten years. Near the trig point Bryan gave a description of his work in refinding the *Polystichum lonchitis*, which was reported in the 2014 *Pteridologist* (Vol. 6(1): 38-41) and hence is not repeated here. On viewing the plants it was noticed that one was growing alongside a *P. aculeatum* with an anomalous frond that raised hopes of it being a possible *P. × illyricum*; however, these were dashed when material sent to Fred Rumsey was determined to be *P. aculeatum*. The excitement called for lunch, after which Bryan tried to convince us of the shape of a face appearing in the limestone nearby.

There followed a long walk downhill where we saw further examples of some of the ferns already seen and then *Asplenium ceterach* near 34/5538.7756. Nearby were several plants of both *Epipactis atrorubens*, *E. helleborine* and their hybrid, *E. × schmalhauseni*, and also *Carex ornithopoda* (34/5530.7768). Continuing downwards we encountered a suspicious-looking *Polypodium* in a gryke near 34/5487.7737, which several members later determined to be *P. cambricum*. Subsequently it was reported that the Cumbria Rare Plants Register

had a record from 1979 for *P. cambricum* at the same grid reference (albeit to six figures) so this could be another refind. A hike through wooded pavement revealed another plant of *A. ceterach* and a further colony of *Polypodium* on a small rock outcrop that was also determined as *P. cambricum*. We concluded the field visit battling through some thickets in an unsuccessful search for *Asplenium adiantum-nigrum* but no-one was particularly disappointed in view of all that had been seen beforehand.

We returned to Alec's house where Linda had kindly prepared welcome refreshments. Over tea members enjoyed their wonderful garden and ferns before Alec ferried us back up to the starting point. Thanks to Alec and Bryan for a most interesting and enjoyable day.

Annual General Meeting, Holehird, South Cumbria – 18 October Peter Champion

We have clocked up twenty North-West Group Annual General Meetings.

The weather was cool and mostly cloudy but dry enough to enjoy the gardens at Holehird, where 24 members gathered to enjoy coffee and chat. Alec Greening encouraged us to buy ferns brought by members, and £70 was raised for Group funds.

After coffee and rather good biscuits Alec presented 'How DNA sequencing affected my fern hunting in Costa Rica (honest)' to us as a slide-show. Alec's inimitable style resulted in a queue of folk asking how to get to Costa Rica. Interesting that a hazard when ferning in the swamps was the crocodiles. Global warming may be more hazardous than we think.

In the afternoon we rattled through the AGM, re-electing the Secretary and Treasurer and having a good discussion about outings for 2015. Ann Haskins presented the accounts for the year. Thank you, Ann. Melville Thomson and Harvey Shepherd won the Indoor and Hardy Fern competitions deservedly even though there was little opposition. Alec Greening won the fiendish puzzle set by Charlie and Frances Haigh. Alec said he would produce something to tease us next year. Alec outlined his plans for a South Lakes National Meeting for the 2016 special anniversary (125th) of the BPS. This will require NW members to be involved in hosting and taking on much of the administration for Alec.

Steve Mees gave us a presentation on the cultivation of the *Polystichum* collection at Holehird. An innovative 'ridge' and the constructive use of a chopped-up tree with the judicious use of leaf-mould had worked well this year. The meeting was so impressed that they voted to give a financial contribution to Holehird for the care of the collection. Peter Champion then showed pictures of his experiments with macro-photography using a macro lens in front of his camera and using a digital camera inserted into the eyepiece of a microscope.

After tea and rather good cakes provided by members the meeting closed; another enjoyable AGM.

SCOTLAND

Arthur's Seat, Edinburgh – 31 May

Chris Nicholson

(Participants: Celina Barroca, Nicole Brandon, Mary Gibby, Gillian Little, Stuart Maxwell, Frank McGavigan, Hannah Mulcahy, Chris Nicholson, Peter, Jan & Finn Upton.)

On a glorious sunny day, perfect for ferning, Mary Gibby led us up the path opposite the Holyrood Palace car park to Hunter's Bog (36/273734). We very soon encountered the first of our targets for the day, the adder's tongue fern, *Ophioglossum vulgatum*. After the first plant had been pointed out, it became easier to spot other specimens growing in the damp grass on either side of the path. Mary explained the structure of the fertile spikes, pointing out the ridges where locules were visible with a hand lens. I did not know that the genus *Ophioglossum* has the highest known chromosome count of any living organism. Growing nearby we saw *Equisetum arvense*, *E. palustre*, *E. fluviatile* and *E. × litorale*, the hybrid between *E. arvense* and *E. fluviatile*. Among the grasses and ferns were numerous northern marsh orchids, *Dactylorhiza purpurella*. Moving further up the valley, a narrow ditch held

examples of *Dryopteris dilatata* and provided the opportunity, a necessary component of any BPS Scottish field trip, to puzzle over *Dryopteris affinis* agg.; we recorded *D. cambrensis* and *D. borrieri*. Some splendid stands of *D. filix-mas* against a backdrop of gorse in blazing bloom provided a good spot for a group photo.



photo: M. Gibby

Hunter's Bog on Arthur's Seat

Chris Nicholson, Stuart Maxwell, Celina Barroca, Gillian Little,
Nicole Brandon, Peter, Jan & Finn Upton, Frank McGavigan

We then walked over to the south side of Arthur's seat where Queen's Drive hugs the base of the cliffs. By the side of the road, on the north side of the wall that bordered the path, we saw *Polypodium vulgare*, *Asplenium trichomanes* subsp. *quadrivalens*, *A. adiantum-nigrum*, *A. ruta-muraria* and *A. scolopendrium*. The warm, south-facing cliffs on the north side of the road are formed of slightly basic basalt rock. It was here that Mary showed us what was for me the highlight of the day – sizeable clumps of *A. septentrionale* and a single plant of *A. × murbeckii*, the hybrid between *A. ruta-muraria* and *A. septentrionale*. Mary had been monitoring the clump for a number of years; it had remained stable in size and is the only confirmed example of the hybrid in this location. Also present on the cliffs were *Polypodium interjectum*, *Asplenium adiantum-nigrum*, *A. ruta-muraria* and *A. trichomanes* subsp. *quadrivalens*.



photo: C. Nicholson

Ophioglossum vulgatum
Hunter's Bog

Heading back down the path, Stuart Maxwell spotted something exciting that we had missed on the way up – a plant of *A. septentrionale* growing in the wall amongst *A. ruta-muraria* in a shadier, cooler location than that of the plants on the cliffs. Nearby was another possible example of their hybrid; formal identification will be needed to confirm whether a second example of *A. × murbeckii* had been discovered on Arthur's Seat.

[*Postscript*: This plant proved not to be the hybrid, but a second plant of *Asplenium × murbeckii* was found on Arthur's Seat by Jim McIntosh in the summer – see Recording Officer's report on p. 85.]

Logan Botanic Garden is situated on the Mull of Galloway in the extreme south-west of Scotland, and is one of the regional gardens of the Royal Botanic Garden Edinburgh. Warmed by the Gulf Stream, it has many plants that cannot survive elsewhere in Scotland. Bridget Laue and I went there to participate in a BioBlitz to help raise the profile of ferns in this most fern-rich garden. With its especially mild and wet climate, the garden had recent mass plantings of many exotic ferns and a famous group of old *Dicksonia antarctica*, which had self-sown abundantly. Due to its remote location the garden receives fewer visitors than it deserves, but the BioBlitz event helped to attract people to see the range of plants and animals that have naturally colonised the garden. Our wild fern count made a small contribution to the total, with only the common species that would be found in most areas of Scotland. On



photo: B.E. Laue

Heather McHaffie at the BPS stand at the Logan BioBlitz

our display table we showed people fern spores, talked about the fern life-cycle and how to grow ferns. As always, the biggest attraction was the microscope with *Equisetum* spores. Two families of young children made repeated visits to see them and became very proficient at 'breathing' on the spores for each other. It was an especially interesting day for us to see how the new plantings were developing and I would strongly recommend a visit.

BSBI Introduction to Ferns at Cramond, Edinburgh – 27 July

Bridget Laue

(Participants: Stewart Bradshaw, Derek Christie, Liza Downie, Janey Floyd, Jim McIntosh, Bridget Laue, Dorothy Moodie, Polly Phillpot, Claire Porteous, Paul Sharp, Alison Smith, Mike Smith.)

Jim McIntosh, the BSBI Scottish Officer, organised a meeting to introduce BSBI members to ferns, and invited the BPS Scotland Group to go along to help. Jim chose a walk along the River Almond at Cramond, on the western outskirts of Edinburgh (36/187765). We convened over refreshments in the garden of a nearby café, where Jim gave a general explanation about ferns and how to identify them. He had brought fronds of *Blechnum spicant* and *Oreopteris limbosperma* (two ferns that would not be seen later on) and helped participants to use the Field Studies Council *Key to common ferns* leaflet to come up with their names. Within the garden there were wild-growing specimens of *Athyrium filix-femina*, *Dryopteris filix-mas*, *Asplenium scolopendrium*, *A. trichomanes* subsp. *quadrivalens* and *Cystopteris fragilis*. Whilst walking upstream along the path beside the river we saw more examples of these species, including a nice population of *C. fragilis* growing on the ruins of a mill. We also found some *Dryopteris affinis* agg. (though failed to define the precise species!), *D. dilatata* and *Polystichum aculeatum*. A specimen of *Equisetum arvense* prompted the explanation that horsetails are now deemed to be ferns (not allies). Although our list for the day was quite short, the meeting seemed to be greatly appreciated by the beginners, who found it a very useful introduction to our native ferns.

Geilston Garden & Glenarn, Argyll – 9 August

Bridget Laue

(*Participants:* Helen Ap-Rhisiart, Derek & Therese Christie, Liza Downie, Janey Floyd, Joanna Gough, Bridget Laue, Gillian Little, Frances Mascarenhas, Frank McGavigan, Dorothy Moodie, Paul Sharp.)

Visitors to the west of Scotland are likely to have come across a colourful leaflet introducing the ‘Glorious Gardens of Argyll and Bute’. Two of the (currently 17) gardens included are Geilston and Glenarn, both off the A814 just to the north-west of Glasgow. We started at Geilston (26/339783), in Cardross on the north side of the Firth of Clyde, where Head Gardener Joanna Gough was on hand to welcome us to this National Trust for Scotland garden. In 2013, Frank McGavigan had planned a meeting at Geilston as an introduction to ferns, with a short talk on fern identification aimed at members of the general public, only to find that his audience comprised entirely ‘old lags’ from the BPS. Undeterred, Frank planned a reprise in 2014 and, finding himself confronted by some new faces, he proceeded to explain frond division armed with a variety of potted exemplars ranging from undivided to tripinnate.



photo: P.M. Sharp

At Geilston Garden

Standing: Janey Floyd, Dorothy Moodie, Liza Downie, Frances Mascarenhas, Derek & Therese Christie, Frank McGavigan, Bridget Laue

In front: Joanna Gough, Helen Ap-Rhisiart

Joanna then led us on a walk around the garden. After stopping briefly to admire the large bed of colourful prairie perennial flowers, including some I recognised from my native Nebraska, we walked along woodland paths finding the expected variety of ferns (see the 2013 *Bulletin* p. 517). En route we passed the well marking the 1863 marriage of I.T.G. and H.E.G., appropriately overgrown with ferns. At the end of the tour, we came to the walled garden wherein lay the *Osmunda regalis* noted last year by Frank; at more than two metres high and about five metres wide this was indeed a magnificent specimen.

As with the event held in Cramond two weeks earlier, this introduction to ferns seemed to be well-appreciated, and our thanks go to Frank and Joanna for making this possible.

After lunch, a smaller group went on to Glenarn (26/274839), a hillside garden in Rhu on Gare Loch. Glenarn is privately owned but open to the public, and is particularly renowned for its rhododendrons. Gillian Little, who was working part-time there, led us around as we attempted to identify the ferns present. There were many plants that had obviously found their own way there: *Asplenium scolopendrium*, *A. trichomanes*, *Athyrium filix-femina*, *Blechnum spicant*, *Dryopteris affinis* agg., *D. dilatata*, *Oreopteris limbosperma* and polypodies assumed (from their locations) to be *Polypodium interjectum* and *P. vulgare*. Other native species in the garden included *Adiantum capillus-veneris*, *Cystopteris fragilis*, *Gymnocarpium dryopteris* and *Osmunda regalis*. There were cultivars of *Polystichum setiferum* including 'Bevis', a *Dryopteris affinis* most likely to be 'Cristata the King', and *D. filix-mas* 'Linearis'.

Non-native ferns that had been planted included *Adiantum aleuticum*, *Cyrtomium fortunei*, *Matteuccia struthiopteris*, *Onoclea sensibilis*, a large bank of *Blechnum cordatum*, and *Polystichum polyblepharum* and *P. munitum*. Some newly planted exotic *Blechnum* species defied our attempts at identification. Overall, a very interesting mix that makes the garden well-worth visiting (you might even go to see the flowers!)



photo: P.M. Sharp

A bank of *Blechnum cordatum* at Glenarn

Leith Hall, Aberdeenshire (38/542298) – 12 August

Frank McGavigan

(Participants: Bridget Laue, Frank & Linda McGavigan, Heather McHaffie, Paul Sharp.)

We had received a request from Richard Wilson, one of the gardeners at this National Trust for Scotland property, to name the ferns he had been uncovering in his restoration of the garden's rockery. Unfortunately, the day before our visit Hurricane Bertha had passed through – trees were down, roads closed, flooding everywhere, and the garden closed to the public, but not to us. We were shown round by Tim Keyworth, the Head Gardener, who confessed to not knowing anything about ferns. (He'll need to learn as he is about to move to Brodick, which has a fine collection of ferns, both native and exotic.)

We had expected to find old Victorian cultivars that we would struggle to name, but it turned out that the rockery ferns had been planted in the early 1990s by a previous Head Gardener, Simon McPhun, and were mostly natives and consequently easy to identify: oak fern, beech fern, hard fern, soft shield fern, a fine clump of parsley fern, royal fern (which was in danger of being shaded out by an overgrown rhododendron), etc. In places these were being overgrown by the three fern thugs – lady fern, male fern and broad buckler fern, and we warned Tim that, attractive as these three are, they need to be kept in check to prevent them swamping the rest.

Among the cultivars and exotics were *Cyrtomium fortunei*, *Blechnum microphyllum*, *Athyrium nipponicum* 'Pictum', *A. otophorum*, *A. filix-femina* 'Frizelliae' and *Matteuccia struthiopteris*. In other words, nothing too difficult to identify. Touring the rest of the estate, we spotted in the kitchen garden several *Asplenium scolopendrium* that looked as if they were several generations down from a fancy Victorian 'scolly' cultivar.

Afterwards, Heather, Linda and I visited Simon and Judith McPhun's garden at Laundry Cottage, four miles south of Huntly, which is open by appointment under the Scotland's Gardens' Scheme and has a fine collection of ferns and other interesting and rare plants – well worth a visit.

Stob Coire Sgriodain (27/357744), Inverness-shire – 30 August Andy MacGregor

(Participants: Roger Golding, Andy MacGregor, Paul Sharp.)

What better motivation for scaling an obscure Munro on a typical West Highland late summer's day (cool and overcast, if not actually raining much) than to encounter an even more obscure clubmoss in one of its few British stations? The three of us, lured out by this combination of delights, set off from the tiny settlement of Fersit, a few miles east of Spean Bridge, to scale Stob Coire Sgriodain (pronounced 'stop corruh skreetan' and meaning, roughly, the little peak of the scree-lined corrie). At 979 metres, this makes it a lower-middle ranking Munro, and viewed from below it is not one of the more dramatic in profile. However, what it lacks in grandeur in certainly makes up for in lycopods.

We saw almost the full complement of British species, including stag's horn clubmoss *Lycopodium clavatum*, interrupted clubmoss *L. annotinum*, fir clubmoss *Huperzia selago* and alpine clubmoss *Diphasiastrum alpinum*, as well as *Selaginella selaginoides* (not strictly a lycopod clubmoss). However, our specific target was the Arctic stag's horn clubmoss *Lycopodium lagopus*, a species whose long-overlooked status as a British native was recently confirmed from herbarium specimens, as described in a 2007 paper by Fred Rumsey (*Watsonia* 26: 477-480). *L. lagopus* is apparently a common species in a range of subarctic habitats, as well as in an alpine setting in the Swiss and Austrian Alps and the Carpathians. On the whole, and as its common name suggests, it has a more northerly distribution than its close relative, the 'common or garden' stag's horn clubmoss *L. clavatum*. The two species are superficially very similar, but Rumsey describes some characteristic differences that enable them to be separated in the field. Most conspicuously, the two differ in the number of spore-bearing 'horns' or cones borne on each shoot, and the length of the peduncle that joins the cone to the shoot: *L. lagopus* typically has one cone per shoot, while *L. clavatum* typically has two or three that are joined to the shoot by a noticeably longer peduncle. This character gives *L. lagopus* its other common name of 'one-cone clubmoss'.

Rumsey found herbarium specimens of *L. lagopus* collected from two locations, of which the earlier (1896) was described as 'Garbh Bheinn, Fersit Forest'. This seems to denote a peak some two kilometres south of Stob Coire Sgriodain, but Roger Golding, armed only with a tent and a healthy dose of pteridomania, had already scoped out the area prior to our visit and located *L. lagopus* on the Stob. We duly refound it in several locations, growing in loose, sprawling masses among summit heath. The distinguishing characters described by Rumsey were indeed easy to discern in the field, albeit that there is a degree of overlap in the characters between the two species (and perhaps some hybridisation?). There is much useful work for field pteridologists to do in establishing the full range of this species.

Our success in finding *L. lagopus* was tempered by our failure to refind the hybrid clubmoss *Diphasiastrum* × *issleri* that Roger had previously recorded from a gully on the mountain's eastern flank. Still, a range of other pteridophytes maintained our enthusiasm. Apart from the usual stuff – hard fern, lady fern, male fern, broad buckler fern, and various members of the *Dryopteris affinis* group (Roger assured us we saw *D. affinis sensu stricto*, *D. borrieri* and *D. cambrensis*) – we saw such upland specialities as the lemon-scented fern *Oreopteris limbosperma*, the mountain buckler fern *Dryopteris oreades* and the parsley fern *Cryptogramma crispa* (three specimens – not as many as one would expect on a mountain named for its scree, but appropriately fine scree was actually rather scarce). Beech fern also appeared frequently in overhangs and crags. For the equisetophiles among us (probably just me), there was a nice colony of wood horsetail (*Equisetum sylvaticum*) along a burn lower down.

The hill, for all its acidic nature, was not without its angiosperm interest either. The slopes were rather luxuriantly clothed in a variety of ericoid sub-shrubs, notably including an abundance of northern bilberry (or northern blaeberry as we should call it up here), and strewn about with cloudberry. Among the wind-clipped summit vegetation we found the world's smallest 'azalea', trailing azalea *Loiseleuria procumbens* and, stretching its two-leaved canopy a good millimetre above the ground, the world's smallest 'tree', least willow *Salix herbacea*.

But enough about the flowers. The low ground had one more pteridological curio before we reached our cars – a red-stiped, leathery-fronded and abundantly sporing bracken, which Roger speculated convincingly to be something distinct from the usual bracken, and different again from the pinewood subspecies with which we are increasingly familiar. *Pteridium aquilinum* 'subsp. *goldingi*' – you heard it here first.

Autumn meeting, Lenzie, Glasgow – 27 September

Maurice Wilkins

(Participants: Derek & Therese Christie, Liza Downie, Adrian Dyer, Mary Gibby, Tim Godfrey, Michael Hutchinson, Bridget Laue, Frank & Linda McGavigan, Chris Nicholson, Paul Sharp, David & Avril Walkinshaw, Maurice Wilkins.)

The last Scotland Group meeting of 2014 was hosted by Frank and Linda McGavigan at their home in Lenzie on what turned out to be a lovely day. After a welcome of coffee and cakes, we had the opportunity to look at the ferns brought in by members to sell in aid of Group funds. One has to be quick on these occasions! There was also the chance to browse among and buy fern books, including some beautiful older second-hand volumes.

We were then taken on a guided tour of the garden. As we set off, Frank pointed out a specimen of *Polystichum setiferum* 'Acutilobum' and explained that this was the plant that first got him into ferns! Among the wide variety of species we admired *Asplenium ceterach*, the rustyback fern; we were told that across the European distribution of this fern there are now considered to be four distinct forms. A good specimen of *Polystichum lonchitis* was to be seen growing at the base of a low wall, a flat stone covering the crown to keep off excess winter wet. I was pleased to see a thriving *P. prescottianum*, something that I have lost and would love to try again. This small deciduous fern is a native of the Himalayas.



photo: M. Wilkins

Frank McGavigan showing his *Polystichum setiferum* 'Acutilobum'

After a lovely lunch, thanks to Linda and Frank and others who brought home baking, we retired to the sitting room for an afternoon of illustrated talks, beginning with a most interesting presentation from Adrian Dyer on 'Henry Bradbury and his Nature-Prints'. To my shame, I had never heard of the gentleman, and neither had Adrian until 1959 when he found a large book of fern prints in Blackwell's bookshop for £3 10s. Over the ensuing years he had researched the life and work of Henry Bradbury (who was born in 1829) and collected his nature-prints whenever he could. During a visit to Vienna in 1851, Bradbury met Alois Auer, who had been experimenting with nature-printing and subsequently published instructions for the process. The specimens were pressed between plates of steel and lead, whereupon the impression of the fern was made on the lead plate. In order to make a greater number of prints a copper facsimile was made electrolytically, hand-coloured and printed on to the paper. It was a very slow process, as the plate had to be cleaned before each new print was made. Adrian had one of these wonderful books for us to inspect, and after washing our hands we were allowed to feel the raised impression of the fern on the paper. Very beautiful.

Bridget Laue then gave us an account of the recent BPS visit to Valle Camonica in the Italian Alps. This trip is reported in full elsewhere in this *Bulletin*, so I will not go into detail. Suffice to say that Bridget entertained us with slides of some wonderful ferns in great locations.

Finally, Mary Gibby gave a short talk on her recent visit to another part of the Italian Alps, between Turin and the Mediterranean. Mary showed pictures of her fern finds, many of which she still has to identify or confirm. It made for a good ending to a most enjoyable day.

SOUTH-EAST

Hole Park, Rolvenden & Angley Wood, Cranbrook, Kent – 14 June

Pat Acock & Paul Ripley

About ten of us met at Hole Park, near Rolvenden (51/833326), to explore the large gardens and woodland associated with this large house and small estate. Much work had been done on the gardens since a previous visit, and we saw *Polystichum setiferum* 'Divisilobum' varieties, *Equisetum hyemale* var. *affine*, *Osmunda regalis*, *Onoclea sensibilis* and *Matteuccia struthiopteris*. Additionally, many 'wild' species: *Pteridium aquilinum*, *Dryopteris filix-mas*, *D. dilatata*, *D. borrieri*, *D. affinis*, *Athyrium filix-femina*, *Asplenium scolopendrium* and (on walls) *A. ruta-muraria* were naturalised in the gardens. The woodland garden was closed for 'renovation', but during our previous visit all the ferns of typical southern acid woodland could be found and it is to be hoped that the wood will not be over-sanitised.

Lunch was provided by the congenial owners, together with local beer. It is a sign of the times that the dairy farm has been superseded by The Old Dairy Brewery.

In the afternoon we made a circular tour of Angley Wood near Cranbrook (entrance at 51/769360). The Society had been here before but not for many years. It is a typical High Weald wood on Wealden sandstone with clay overlay. *Pteridium aquilinum* was abundant, and *Dryopteris dilatata* and *Athyrium filix-femina* were common. Locally prevalent were *Dryopteris borrieri*, *D. affinis*, *D. filix-mas*, *D. carthusiana*, *Blechnum spicant* and *Oreopteris limbosperma*, and we also found a few small plants of *Osmunda regalis*, clearly not planted. A number of candidates were confirmed by examination of abortive spores to be *Dryopteris* × *deweveri*. We also found some putative *D.* × *critica* and *D.* × *complexa*, but these have not to date been confirmed. We did not find marsh fern at our last visit and failed to find any this time, and we think it is unlikely to be present in the wood.

**Steep, Hampshire (Ashford Chace – Ashford Hangars National Nature Reserve),
& West Dean Gardens, near Chichester, West Sussex – 5 July** **Julian Reed**
(Leaders: Paul Ripley, Julian Reed & Peter Tindley. Joint meeting with Wessex Group)

(Participants: Pat Acock, Jo & Ashley Basil, Roger Golding, Andrew Leonard, Julian Reed, Paul Ripley, Peter Tindley, Gert-Jan van der Kolk.)

The BPS last visited Steep in 1994. The area is very ferny (what a surprise!). Hart's tongues (*Asplenium scolopendrium*) were predominant in Chace Wood (41/735258) and there was a wide range of variation, from those with rippling frond edges or crested forms, to those with simple plain leaves but more upright in habit. In the past BPS member Tim Brock, a hart's tongue National Collection holder, found one of the elite forms called 'Crispum' in these woods. We also found soft and hard shield ferns (*Polystichum setiferum* and *P. aculeatum*), some of amazing size. A few plants may have been *P. × bicknellii*, the hybrid between the two. Gert-Jan spotted a hard shield fern with one frond forked at the end, which is quite unusual. A range of male ferns (*Dryopteris filix-mas* and *D. affinis* types) and broad buckler fern (*D. dilatata*) were seen, as well as *Polypodium interjectum* growing on the trees.

West Dean Gardens (41/863127) were developed by Jim Buckland and Sarah Wain for The Edward James Foundation charity. After a good lunch we met up with Sarah who gave us a brilliant talk and showed us around. One of the main fern highlights was the amazing greenhouse in the immaculate walled garden, which had a wide range of variegated and crested maidenhair ferns (*Adiantum* spp.). (See article in the 2014 *Pteridologist* for pictures.) There were also ribbon ferns (*Pteris cretica*), hare's foot ferns (*Davallia*), Boston ferns (*Nephrolepis*), stag's horn ferns (*Platycerium*), lady ferns (*Athyrium*), *Microsorium* and a wide range of spike-mosses (*Selaginella*).



photo: J.P. Reed

Peter Tindley, Andrew Leonard & Jo Basil examine ferns at West Dean Gardens

In the area outside the walled garden we found a lady fern whose frond was latticed in a criss-cross fashion with a large crest on top. A most unusual and great plant, though apparently it looked even better last year. Also seen amongst the very clever plantings were ostrich fern (*Matteuccia struthiopteris*), *M. orientalis*, sensitive fern (*Onoclea sensibilis*) and *Dryopteris wallichiana* as well as a large number of *Polystichum setiferum* 'Bevis' derived by micropropagation. Some of the non-ferny highlights were the vegetable garden, and fruit trees beautifully trained into cones and goblets. A fun day full of good humour and great plants.

The Swiss Garden, Biggleswade & Mick & Linda Craddock's garden, Ampthill, Bedfordshire; Valdy Pierozynski's garden, Farnham Common, Buckinghamshire
– 23 August **Richard Treganowan**

Two garden visits were originally planned for this joint meeting of the South-East and East Anglia Groups but, because of 'force majeure', a further garden, that of Mick and Linda Craddock, was added as a most interesting destination. More of this later.

The party mustered at Old Warden Aerodrome, Biggleswade, eagerly anticipating in particular close inspection of the renowned fern house and its contents within The Swiss Garden, a late Regency, nine-acre garden adjacent to the aerodrome (52/149448). Imagine our collective surprise in finding a truly splendid Regency fern house, but no ferns to be seen within, save for one centrally located *Asplenium scolopendrium*! All other plants had recently been removed to enable a full and unimpeded refurbishment of the fernery and taken away for safety. Remaining in optimistic mood and masking a level of disappointment, the party headed out into the surrounding garden.

This too had been refurbished and had little of fern interest, however, outside the garden was a (presumably artificial) lake and an area of woodland that at our last visit contained interesting polystichums. We did indeed find a foliose *Polystichum setiferum*, but also a number of 'normal' *P. setiferum*, *P. aculeatum* and a possible hybrid (*P. × bicknellii*). As *P. setiferum* was not recorded for the county of Bedfordshire in Dony's Flora of 1953 (there is a later edition), it is possible that the plants here were originally sporelings from plants in the garden. (I am indebted to Martin Rickard for this research.) However, we did also find *Dryopteris filix-mas*, *D. affinis*, *D. borrieri*, *D. carthusiana*, *D. dilatata*, *Athyrium filix-femina* and *Asplenium scolopendrium* in this interesting wood, so native status cannot be ruled out.

An unexpected treat lay in store for us. With more time available due to the shorter than planned visit to Biggleswade, Mick and Linda Craddock most kindly suggested that we might find a tour of their garden in Ampthill an interesting stopover on our way to Valdy Pierozynski's garden in Farnham Common, our final destination. With the suggestion also of some refreshments, acceptance was readily secured. As we rounded the corner in the sleepy village in convoy, the sheer horticultural and lush impact of the front garden gave the game away as we approached. Here were all manner of fascinating tree ferns, other scarce ferns and palms a-plenty, all within and surrounded by what is a regular and normal suburban landscape. What a surprise! Even equisetums, several varieties, were well represented. In the twinkling of an eye, this modest area was filled with rubber-necking enthusiasts recognising (or maybe guessing!) species within. A notable feature was an overhanging gantry from the main building designed to afford shade to part of the garden close to the house. Of particular note was a *Blechnum* bearing three types of fertile frond.

If the front garden kick-started the adrenaline, the rear garden positively exploded with innovation and interest! Here were fern species displayed to their best advantage, with optimum use made of every scrap of available space, light and shade. Clever use of bread baskets was made, affording maximum drainage and using every piece of space available. The sheer numbers of different varieties concentrated into such a small area was amazing. Here also was a greenhouse/lean-to containing some of the more tender and, probably, more precious ferns. Outstanding was the *Davallia* collection, rhizomatous as you might expect. Clearly Mick's method in not grouping like species together but, interestingly, to mix them all up, was much appreciated and admired by the visitors. Mick had introduced an interesting approach towards directing, using and capturing rain water run-off utilising a plethora of levels and devices installed in the garden to ensure that water conservation is optimised. Impressive.

Valdy Pierozynski, partly facilitated by extensive foreign travel, had amassed an amazing collection of, mainly southern hemisphere, ferns. Particularly impressive were large trunked blechnums, including *Blechnum gibbum* and *B. brasiliense*, but his large greenhouse was notable for a possibly unrivalled collection of epiphytes, mostly grown on tree fern trunks on the ground and on landscaped slopes. These included a *Lecanopteris*, several tropical Polypodiaceae and *Elaphoglossum*, including the beautiful *E. crinitum*. We are most grateful to Valdy for showing us his terrific collection (and for his generosity in providing us with plants to take away), and to Greta for providing a lovely and welcome tea.

Appledore, Kent – 8 November

Peter Blake

It was a bright and blustery day when ten members of the South-East and East Anglia groups met at Appledore station (51/976298). After noting the abundance of *Asplenium adiantum-nigrum* on the station walls, Paul Ripley led the group by car to a brick road-bridge on the approach to the Romney Marsh Wartime Museum at Brenzett (61/008272). On the south-facing side of the bridge, exposed to the sun and the wind, were several specimens of *Asplenium septentrionale*. In this harsh environment none was more than four centimetres high but these plants had existed there over many years.



photo: R. Golding

Asplenium septentrionale site, Brenzett, Romney Marsh

Peter Blake, Julian Reed, Tim Pyner, Peter Tindley,
Fern Alder, Mark Border, Jude Lawton,
Gert-Jan van der Kolk, Paul Ripley, Geoffrey Kitchener

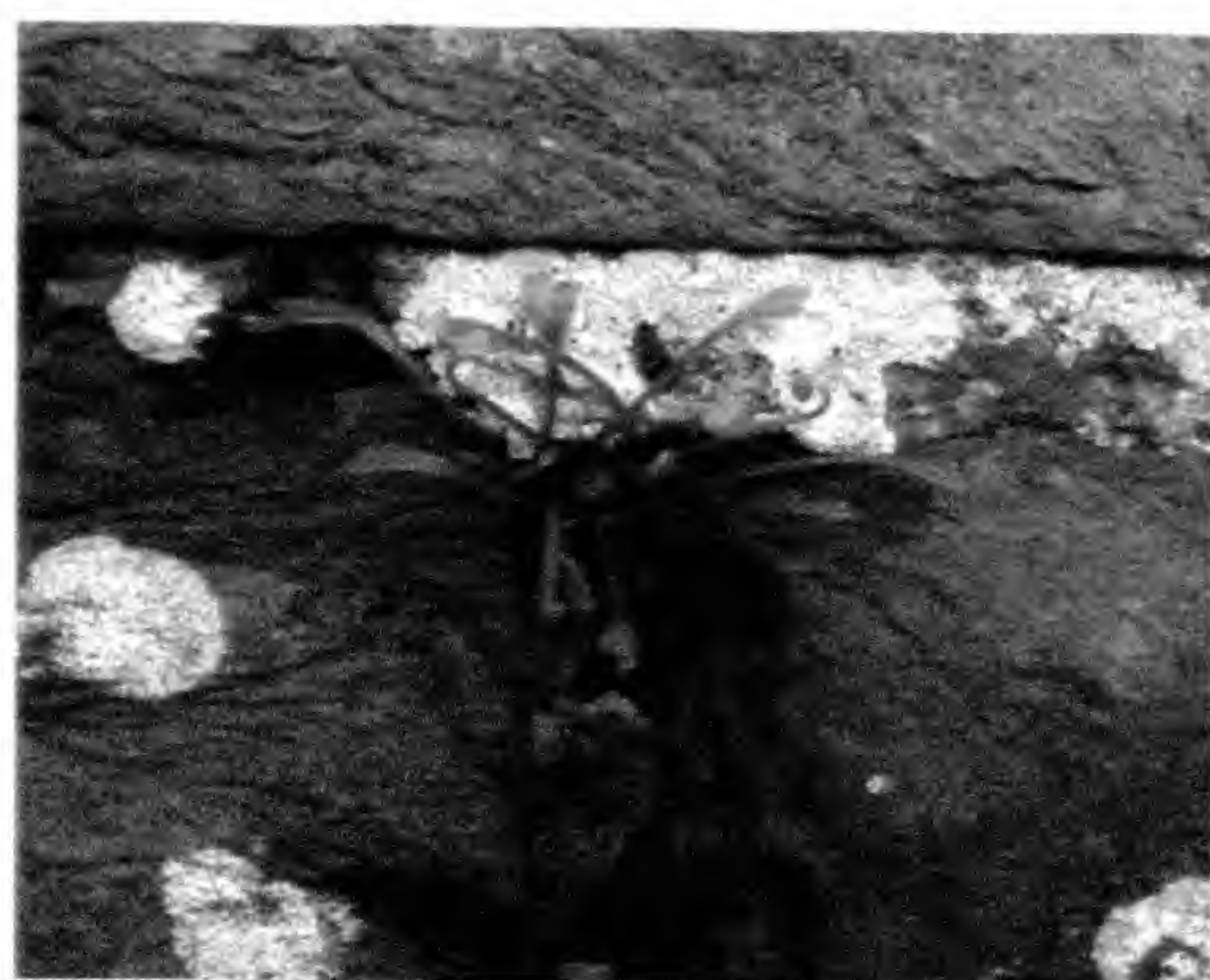


photo: R. Golding

Asplenium septentrionale, Brenzett, Romney Marsh

A short drive just over the border into East Sussex took the group to a narrow cleft in the hillside (51/833237) with a muddy path and stream. In this sheltered site were many large *Asplenium scolopendrium* and *Polystichum setiferum*. The latter were interesting both because of their very large size and also the considerable variation between plants in both colour and degree of division. Some plants were veering towards *P. setiferum* 'Decompositum'. When returning down the footpath a clump of *Polypodium* resembling *P. interjectum* was seen and a frond retrieved. Examination with a very useful hand-microscope of Paul's revealed a dark annulus and it was thought to be *P. × mantoniae*.

The group returned to study Paul's fern garden between the road and stream opposite his house. This area was reasonably protected from the wind but quite exposed to the sun. There were many interesting ferns that Paul had collected from other fern enthusiasts over the years including a plant identified by Tim Pyner as *Blechnum hastatum*, and a *B. spicant* with very variable leaf form ranging from one-pinnate to almost two-pinnate.

After lunch in the Appledore station café, the group drove to the recreation hall in Appledore village where there were five presentations. The first was an account by Roger Golding of his trip through the Lake District to Scotland to lead a field group in looking for lycopods in the Highlands. In Langdale he had found *Lycopodium clavatum*, and on the slopes of Bowfell, *L. annotinum*, this being the only recorded site in England for this species. In Johnny Wood, near Borrowdale, *Hymenophyllum wilsonii* was found. At Bewcastle Fell, Roger again found *H. wilsonii* and also the hybrid *H. × scopulorum* at the spot where the hybrid had recently been discovered for the first time. Further searching revealed the other parent of the hybrid, *H. tunbrigense*. A visit to Benmore Fernery revealed an excellent collection of blechnums and then he went on to the Highlands. Near Glen Spean, the field group found *Lycopodium lagopus* in both single-coned and double-coned forms. They also found *L. annotinum*, *Selaginella selaginoides*, *Huperzia selago* and *Diphasiastrum alpinum*, and *Lycopodium clavatum* in the glen below. The hybrid *D. × issleri* (which he had found here two years earlier) remained apparently elusive but he later identified a probable candidate from photographs taken during the trip.

Tim Pyner covered the recent 25th anniversary of the Dutch Fern Society in Leiden and the subsequent tour of Harry Roskam's excellent collection in the Leiden Hortus Botanicus and of several fern gardens in the Netherlands and Belgium. It was remarked that this seemed to be a particularly good part of the world for growing ferns, as not only were they often larger than in the UK but they also seemed to be hardier. *Woodwardia radicans* was growing outside happily in a Dutch garden along with *W. prolifera*.

After an excellent tea of home-made cakes and scones, there were further talks by Julian Reed on his many cultivars and by Paul Ripley on the recent BPS trip to northern Italy. Finally Howard Matthews presented a review of *Dryopteris neorosthornii* and its complicated relationship to *D. wallichiana*.

SOUTH WALES AND THE BORDERS

Corndon Hill, Radnorshire – 23 July

Brian Dockerill

Several people had decided to give this meeting a miss, in part on account of the very hot weather, and so it was just four members and one guest who met at the Mitchell's Fold stone circle car park (32/303981). We decided to take a direct path to the summit of Corndon Hill (32/306969) and from there to descend to the screes on the east of the hill.

During the climb we only saw much *Pteridium aquilinum* and a few *Dryopteris dilatata*. Once at the top we noted a single *D. borrieri* near the cairn before heading towards the screes. Almost immediately we found *Phegopteris connectilis* nestling under a large overhanging boulder and a small *Cryptogramma crispa* sporeling. Interesting outcrops and areas of scree were separated by large areas of *Pteridium aquilinum* masking extremely uneven rocky ground that had to be crossed with great care, particularly when descending. However, after an hour or more we had found *Athyrium filix-femina*, *Dryopteris affinis*, *D. cambrensis*, *D. filix-mas*, *Polypodium vulgare* and quite frequent *Gymnocarpium dryopteris*, the oak fern looking very tired after the recent hot and dry weather. This was in contrast to a great number of *Cryptogramma crispa* that looked remarkably fresh. We were fortunate in that Martin Godfrey had brought a grid reference (32/3110.9685) for a previously confirmed plant of *Dryopteris expansa*. We were delighted to be able to verify that this species still grows on the hill, albeit perhaps only the one plant. Martin also spotted a form of *Dryopteris* that further investigation showed to be *D. × complexa*.

After resting and taking our lunch we carried on down the hill past huge clumps of *D. affinis* and *D. cambrensis*, some looking very golden, to complete the return journey along the base of the hill and adding *Oreopteris limbosperma* to our list on the way. All-in-all this was a most enjoyable and rewarding outing, despite the heat!

Tim Brock's Garden, near Llandewi Brefi, Ceredigion – 30 August Sue Dockerill

Thirteen members and guests met at Tim's garden in Ceredigion. After making the most of the tea and cakes on offer, Tim showed us around the garden. The site was stunning – set on a west-facing hillside well above the village. However, the acid, stony upland soil and high rainfall meant that a lot of work was involved to get his plants in the ground. He had only been there three years and it was amazing how much he had done in that time.

The main interest of the visit was the National Collection of *Asplenium scolopendrium*. And what a collection it was. Not just the named plants, but also the myriad results of Tim's hybridisations – an amazing way to see what can be done within a single species. The 'Crispum' varieties attracted attention, particularly one that Tim had called *A. scolopendrium* 'Crispum Kenneth' after his father. This was a wild find of his in a wood near his previous home in Petersfield, Hampshire, and was a very undulate form with wide fronds. There was also much discussion about a plant Tim had as *A. scolopendrium* 'Treble', a ramose form with regular, square-looking final segments. Was it the true plant? It had been found in a batch of micropropagated material at Fibrex Nurseries and luckily Angela Tandy was on hand to confirm that it was consistent with what she remembered. I was particularly interested in seeing his 'Breeches Pocketum' varieties (see *Pteridologist* 5(6): 449), which had grown into very healthy, dark green plants with well-developed pockets and horns. These were just one example of the large array of intermediates and composite forms that Tim had obtained from crossing 'Peraferens' and 'Fimbriatum' varieties with crispums, saggitatums and other named forms. It certainly brought the excitement of hybridising to life.

Tim's interest in cultivars was also shown in other genera, particularly *Polystichum* and *Polypodium*, the latter looking particularly good at the time of our visit. So, after an interesting morning, we walked across the fields to the pub in the village for lunch.



photo: P. Gwynne

Outside The New Inn, Llandewi Brefi

Diana Brown, Angela Tandy, Tim Brock, Christine Mullins, Susan Lewis, Martin Rickard,
Olive Mason, Bob Brown, Judi Deakin, Andrew Tolman, Sue Dockerill

Afterwards we walked back up to the house, but this time via the lanes and woods to see what ferns we could find. One wall in the village (22/663551) was loaded with *Asplenium ruta-muraria*, while just round the corner *A. trichomanes* subsp. *quadrivalens* ruled supreme, both accompanied by *A. ceterach*. *Polypodium vulgare* and *P. interjectum* grew on walls further along, and *Pteridium aquilinum*, *Athyrium filix-femina*, *Dryopteris dilatata* and *D. filix-mas* dotted the lane-side. When we entered the woods (22/667548), we also found *D. affinis*, *D. borrieri* and its morphotype 'robusta', and even some hart's tongues on a shady, moist wall. We were pleased to refind a single *Polystichum setiferum* that Julian Reed had seen on a previous visit, and also a possible small *Dryopteris aemula*.

After enjoying a fantastic chocolate cake back at the cottage, we made our way home feeling very grateful to Tim and Pete for giving us such a good day.

WESSEX

New Forest, Hampshire – 26 July

Paul Ripley

Eight members and guests, including Mike Rowe who lives locally and has considerable knowledge of the area's botany, met at Jo and Ashley Basil's house, in Boldre, near Lymington for this joint meeting with the South-East regional group.

After sorting out the Society's problems over coffee, our first visit was to Buckland Wood near Lymington, where Janet and Gareth James had kindly given us permission to explore a wood that was effectively their back garden. Our attention was caught by some unusual bracken (*Pteridium aquilinum*) fronds, some foliose, crisp or depauperate. In a boggy area near a tributary of the Lymington River we saw many plants of *Dryopteris dilatata* and *D. carthusiana*, but none that convinced us they might have been the hybrid, *D. × deweveri*. There were also fine plants of *Athyrium filix-femina* and *Blechnum spicant* here.

After a superb, and largely home-grown, lunch, we briefly toured Jo and Ashley's garden. A magnificent specimen of *Lophosoria quadripinnata* caught our eye, along with some fine dicksonias, and plants of *Adiantum venustum* and *Araiostegia perdurans* grown to good effect in hanging baskets.

Our next stop was a sphagnum bog west of Setley model yacht pond, just before the railway bridge (40/303994), where we saw *Lycopodiella inundata* growing well and fruiting, together with, among others, bog asphodel, bog cotton, sundew, bog St John's-wort, and, in drier places, lesser spearwort.

Just beyond the Police Station on the A337 out of Lyndhurst, we turned right, across a golf course into an area cleared of pine trees three to four years ago (40/3058.0923). Among the bracken (*Pteridium aquilinum*), several *Osmunda regalis* sporelings were happily colonising. We also saw *Dryopteris dilatata*, *D. carthusiana*, *Blechnum spicant*, *Athyrium filix-femina* and *Oreopteris limbosperma* here. By a small stream were individual plants of *Dryopteris filix-mas*, and also *D. borrieri*, otherwise uncommon here, although in the absence of a minimum of ten different opinions and an eventual 90% consensus, there was some reluctance to believe this recorder!

Finally we visited the well-known *Equisetum × bowmanii* site close by the A337 in Shave Wood near Minstead (40/295123). We found this hybrid between *E. telmateia* and *E. sylvaticum* in excellent condition, protected from grazing between the road and the fence, although a number of stems were also found some distance away in an area that presumably is grazed. Apart from the ubiquitous bracken, we also found *Polypodium vulgare* and (probably) *P. interjectum*, growing side-by-side on an oak tree.

Thank you, Jo and Ashley, for a lovely, well-planned day and for a fantastic lunch.

YORKSHIRE FERN GROUP

Moonwort survey, Redmire, Grinton, Yorkshire Dales – 24 May Barry Wright

The moonwort (*Botrychium lunaria*) survey continued monitoring 12 fixed quadrats along the Grinton to Redmire road at around 44/039965.

The data showed continued variation between quadrats, and between 2014 and previous years as shown in the table below. 2014 was one of the poorest years for overall numbers (total 140 moonworts and six adder’s tongues, *Ophioglossum vulgatum*).

		Quadrat no.										Total	Quadrat no.		Total
		230	231	232	233	236	322	323	324	325	326		267	269	
Moonwort	2009	11	6	0	11	39	9	9	27	15	12	139	-	-	
	2010	20	10	3	27	75	22	4	24	17	11	213	-	-	
	2011	24	12	2	13	51	18	4	47	39	21	231	18	6	24
	2012	22	4	3	8	52	14	6	21	39	13	182	27	10	37
	2013	49	7	7	16	35	9	5	43	28	23	222	7	11	18
	2014	7	1	2	12	25	2	15	12	34	30	140	4	3	7
	Average	22	7	3	15	46	12	7	29	29	18		14	8	
Adder’s tongue	2011												3	3	6
	2012												8	4	12
	2013												0	6	6
	2014												4	2	6
	Average												4	4	

The distribution of spikes in quadrats again varied from year-to-year and continued to show that core areas remain core areas and outlier spikes are still thrown up in areas where there were no spikes in previous and/or subsequent years. 2015 may be the last year this work is done (does anyone want to buy 100 redundant cocktail sticks before Scale Bear puts them on eBay?) as the data collected seems sufficient to conclude that moonwort and adder’s tongue are fickle. This has implications for surveying, showing that in ‘bad’ years the number of spikes could be low and colonies could be overlooked (see quadrat 232 in 2009 for an absence of moonwort and quadrat 267 in 2013 for an absence of adder’s tongue), or at least under-recorded (see quadrat 236 in 2010 and 2014 for moonwort) compared with a survey done in a ‘good’ year.

Many thanks to the loyal band of sad people who would rather spend their Saturday squinting into short grass turf for the tiny spikes of moonwort and adder’s tongue than sitting at home and watching the ‘footie’! But the pub grub, good company and tasty Yorkshire beer go a long way to making it all worthwhile.

Greno Wood / Grenoside Nature Reserve & Wentworth Castle, South Yorkshire – 21 June

Paul Ruston

On a fine sunny morning six members from the Yorkshire and Manchester fern groups met at Greno Wood car park 43/325951. Sheffield Wildlife Trust (SWT) had recently secured complete ownership of this 178 hectare site, reputed to be of ancient origin. Their long-term plan is to remove non-native conifers and replant with appropriate broad-leaf native trees such as oak. Our first fern of interest was a nice red-stemmed *Athyrium filix-femina*. It did not take long for us to realise that we would have to adopt bracken avoidance tactics, therefore we followed a track that would circumnavigate the wildlife reserve, which was

virtually treeless and completely swamped with bracken. *Blechnum spicant* was plentiful by the edge of the track, as were *Athyrium filix-femina*, *Dryopteris dilatata* and *D. filix-mas*. Several very young plants of the *D. affinis* aggregate with slightly leathery, dark green, overlapping pinna were examined; sori were not present. Druce's crane's-bill *Geranium* × *oxonianum* gave a splash of colour amongst the greenery. A disused quarry looked promising but upon closer inspection it was clear that *Dryopteris dilatata* was the sole fern species. We continued along the track and reached Greno Knoll trig point. A single plant of *Polypodium vulgare* was spotted growing nearby at the base of a knurled oak tree and *Equisetum arvense* was poking through bracken by the track-edge. A small group of young putative *Dryopteris carthusiana* or *D.* × *deweeveri* growing in a stand of bracken gave us something to chew over. The thin, pale stipes did not arise from a central rhizome and the scales were also pale; sori were absent.

We returned to the car park to drive on to Wentworth Castle (44/321033). Walking from the car park to the garden entrance we passed a weather-worn stone wall in which we saw our first spleenworts of the day: *Asplenium ruta-muraria* and *A. trichomanes* subsp. *quadrivalens*. We ate our lunch before entering the garden. Our plan to make an early entrance to the recently restored conservatory was well and truly dashed as a wedding reception was taking place that afternoon. This gave us time to see the fern garden and stumperies. Thanks to the very wet, mild winter and spring the ferns here had prospered and were a joy to see. *Polystichum* × *bicknellii* immediately caught our attention – what a superb plant! A group of tall and stout-trunked *Dicksonia antarctica* with lush and arching apple-green fronds were central to large stands of *Polystichum proliferum* and *Matteuccia struthiopteris*. The fernery was quite extensive and offered a diverse range of niche areas where rock work, tree stumps and sheltered hollows had been tastefully exploited. *Asplenium trichomanes* subsp. *quadrivalens* was used extensively among the rock work, along with *Athyrium filix-femina* 'Frizelliae' and *Asplenium scolopendrium* cultivars. In sheltered spots *Dryopteris wallichiana* was abundant, as were the very charming *D. marginalis*, *Athyrium otophorum* and *A. filix-femina* 'Vernoniae Cristatum'. *Polystichums* and *polypodiums* were extensive.



photo: P.I. Ruston

Outside Wentworth Castle Conservatory

Michael Wilcox, Henry Folkard, Alison Evans, John Grue, Bruce Brown

The nuptials were coming to a close as we entered the conservatory. *Pteris cretica* and species of *Blechnum* and *Adiantum* vied with flowering *Strelitzia*, Cape heaths and *Anigozanthos*, with cushions of bright green *Selaginella* as ground cover. The well-tended plants, placed at ground level into compartments relating to their continent of origin, were seemingly kept to a minimum, leaving plenty of free space for functions. This exquisite Victorian structure, built in 1885 by Thomas F.C. Wentworth, fell into decline, probably after the First World War, and for well over two decades remained in a perilous condition, being propped up with scaffold poles. Funding was eventually secured and 2011 saw the whole ensemble dismantled by a local company and removed to their factory in Barnsley, where the restorative work began. In 2013 the restored sections were returned to Wentworth Castle. A wonderful achievement by all those concerned, especially the restorers.

North Wales, 30th Anniversary Meeting – 12-14 July

Saturday 12th – Gwydyr Forest, Gwynedd & Helyg, Gwynedd (v.c. 49) David Hill

As I headed up the Conwy Valley to the FSC Rhyd-y-Creuau field centre outside Betws-y-Coed, the weather was set fair. However, it was with slight nervousness that I met the assembled Yorkshire Fern Group (who had arranged accommodation there). I had previously met Mike Canaway when I had taken a group around Cwm Idwal, at the time surprised (not anymore!) that someone would drive all the way from Yorkshire to see some ferns! Mike later asked if I could suggest some sites for a more extended excursion with the Group for their thirtieth anniversary; I suggested some sites and offered to act as an unofficial tour guide!



photo: C. Evans

***Osmunda regalis* at Llyn Sarnau, Gwydyr forest**

Bruce Brown, David Hill, Jesse Tregale, Mike Canaway,
Ben Ram, Alison Evans, Lucia Ruffino, Michael Wilcox

We started the day at Llyn Sarnau up in the Gwydyr forest (23/778591), and headed along a forest track towards Coed Mawr Pool mine. Despite the below-average rainfall, Llyn

Sarnau still had enough moisture for a small *Osmunda regalis* to be surviving out towards the centre on a very dry, yet still bouncy, bog. A little further on we entered the forest proper, to be met by a wall of large hedgerow ferns: *Athyrium filix-femina* intertwined with *Dryopteris affinis*, *D. borrieri*, *D. dilatata* and *Oreopteris limbosperma*. Long debates ensued and ferns were compared and examined, and I started to wonder if we would ever manage to get to the first site, let alone the afternoon's sites! *Blechnum spicant*, *D. filix-mas*, *Polypodium vulgare* and *Pteridium aquilinum* were frequent on the sheltered slopes as we descended, but also discovered was an occasional *Polystichum setiferum* and a purple-stemmed *Athyrium filix-femina*.

One and a half hours later we had covered the one kilometre to our destination, one of my favourite spots, the lichen-covered spoil of a disused lead mine (23/781584). The abundant metalliferous lichens included extensive stands of impressive *Stereocaulon vesuvianum*, interspersed with colourful *Rhizocarpon oederi* and *R. geographicum* and the ever-impressive cladonias (*C. portentosa*, *C. bellidiflora*, *C. subulata* and *C. cervicornis* subsp. *verticillata*). As the group rushed across the spoil to look at an impressive *Dryopteris cambrensis* and *D. oreades*, the penny dropped, and hundreds of small grass-like clumps of *Asplenium septentrionale* seeped into our consciousness, hiding between the boulders and lichens. Here and there the odd *A. adiantum-nigrum* and *A. trichomanes* subsp. *trichomanes* crept in, and *A. ruta-muraria* was located on an old mine building, but the site belonged to the lichens and forked spleenworts.

As we wandered back to the vehicles, the morning seemed to have gone well, and I finally relaxed.

After a brief lakeside lunch we moved a short distance to the North Wales Wildlife Trust reserve of Cors Bodgynydd (23/766596). The principal aim was to commandeer the group to assist with a personal project to see if we could relocate *Lycopodiella inundata*, last recorded on the site in 1999. Despite detailed checks of three historical grid-references and all suitable habitats, only a fellow clubmoss, *Huperzia selago* was found. Overall the site was fern-poor, with two *Osmunda* adding to the short list of *Pteridium*, *Athyrium filix-femina*, *Blechnum spicant*, *Oreopteris limbosperma* and *Dryopteris dilatata*. The bright yellow flowers of the bladderwort *Utricularia minor* did, however, lift the mood as the Snowdonian drizzle started. Whilst checking the woods just outside of the site *Dryopteris affinis* subsp. *paleaceolobata* and an impressively large *D. dilatata* were located before moving on.

We just had time for a quick excursion to a nearby site, Helyg (23/687602), at the base of Tryfan, which I knew well. The short walk added four other taxa to the day, *Asplenium trichomanes* subsp. *quadrivalens*, *Cryptogramma crispa* and some *Phegopteris connectilis*, along with my personal favourite, a two by one metre patch of *Lycopodiella inundata*. A fitting end to our first day, before retiring to the FSC centre for a 'paned o de a bara-brith'.

Sunday 13th – Coed Felinrhyd, Maentwrog, Gwynedd (v.c. 48) Bruce Brown

On day two our party increased to nine, with another local, Robbie Blackhall-Miles, joining us and deciding to become a BPS member. We headed west to Maentwrog, close to sea level, to visit a classic Atlantic sessile oak wood, Coed Felinrhyd, in the care of the Woodland Trust. We had already clocked up ten taxa by our roadside parking lay-by (23/654396), including *Asplenium ceterach*, *Polypodium vulgare*, *P. interjectum*, and also *P. × mantoniae*, which we confirmed that evening under an FSC microscope.

The woodland was rich in bryophytes and lichens, of much interest to the local members, and included rarities such as *Lobaria pulmonaria*. The yellow flowers of common cow-wheat (*Melampyrum pratense*) were a colourful addition to the woodland scene. But to concentrate on the ferns – a crag-face by the river was festooned with *Osmunda*, some mature, some young sporelings, and plants of *Polystichum setiferum* and *P. aculeatum* were noted here too. *Blechnum spicant* just had to be the commonest fern on the woodland banks,

its fronds everywhere, and epiphytic polypodies decorated most of the oaks. *Dryopteris affinis* species were common and as usual sparked much debate, but most were *D. affinis* or *D. borrieri* – no *D. cambrensis* here. A huge potential *D. × complexa* plant was later checked in the lab but proved fertile. A couple of very good candidates for *D. affinis* subsp. *paleaceolobata* were found though.

Phegopteris connectilis and *Oreopteris limbosperma* put in an appearance, then higher up the path we were delighted to find splendid specimens of *Dryopteris aemula*, notable by their fresh look of upturned pinnules. Filmy ferns next appeared, first *Hymenophyllum tunbrigense* and later on *H. wilsonii*, both with sori present to aid recognition. Here more birch and some larch complemented the oaks, and the filmies interwoven with bryophytes happily grew on some of the tree boles.

After carefully crossing the river we dropped down to a large pool below a waterfall (23/667389). The increased humidity here made for rich growth of the *D. aemula*, *Phegopteris* and Wilson's filmies as well as more *P. aculeatum*, so was a good place to finish our exploration before exiting the woodland onto a minor road back to the cars.

Monday 14th – Ynys Llanddwyn, Anglesey

Alison Evans

We met in the large car park on Newborough Warren (23/495634) and headed quickly along the sands towards Ynys Llanddwyn in the hope of arriving before the causeway was under water. We arrived about two hours before high tide but still found the island cut off, so after checking the rocks in vain for sea spleenwort we spent the morning exploring the southern coastal part of Newborough Forest. Our first fern was *Polypodium vulgare* at 23/3916.6353, showing through a carpet of dewberry, *Rubus caesius*, and ivy, accompanied by many spikes of ivy broomrape, *Orobanche hederæ*, and the first of many specimens of dune helleborine, *Epipactis dunensis*. A little further up the hill we found a colony of polypodies with very large broad fronds, which was later confirmed by microscopical examination as *Polypodium interjectum*. Moving on to the rocks above the beach we found *Asplenium ruta-muraria*, then going further into the forest we found a patch of woodland ferns including *Polystichum setiferum*, *Dryopteris cambrensis*, a very large *Asplenium adiantum-nigrum*, and a rather yellowish *A. scolopendrium* in amongst patches of *Polypodium interjectum* dotted over the forest floor. We took specimens from an *Asplenium trichomanes* growing at the base of a pine tree, and Bruce later confirmed that this was subsp. *quadrivalens*. Light rain had started to fall, so we sheltered in a ferny hollow to eat our lunch and then returned to the beach to find the causeway to the island passable.

On Ynys Llanddwyn we paused to read the interpretation boards about St Dwynwen, the Welsh patron saint of lovers, and about the geology of the island with pillow lava resulting from old volcanic activity below the sea-bed, and melange from the movement of tectonic plates causing rocks to be jumbled. David had grid references for sites of *Asplenium obovatum* subsp. *lanceolatum*, which we found first at 23/3895.6317. After counting around a dozen plants at this site, we crossed to the other side of the path and found several large colonies of *A. adiantum-nigrum* at 23/3897.6313, then around a dozen more plants of *A. obovatum*, with one clump about 45 centimetres across. David then pointed us to a large rock further along the island, where we found a good colony of *A. marinum* before rejoining David in a hands-and-knees search for *Ophioglossum azoricum*, which we failed to find. We headed back along a track with great views of the sea and across to Anglesey, then after crossing the causeway and beach we took the woodland path back to the car park. We noted *A. adiantum-nigrum* growing in a sand-bank, and extensive colonies of very large polypodies. One frond that Mike Canaway measured was 68 centimetres long. Although we thought it looked like *P. vulgare* at the time, it turned out to be *P. interjectum* when checked microscopically. We also admired the extensive colonies of round-leaved wintergreen, *Pyrola rotundifolia*, and Mike Wilcox recorded *Dryopteris borrieri* at 23/4019.6363. Back at the cars we thanked David for an excellent weekend, and made him a life member of the Yorkshire Fern Group, before heading back home.

Fern seen in North Wales, July 2014

	Saturday 12th			Sunday 13th	Monday 14th	
	Llyn Sarnau	Cors Bodgynydd	Helyg	Coed Felinrhyd	Newborough Warren	Ynys Llanddwyn
Asplenium adiantum-nigrum	+		+	+	+	+
A. ceterach				+		
A. marinum						+
A. obovatum subsp. lanceolatum						+
A. ruta-muraria	+		+		+	+
A. scolopendrium				+	+	
A. septentrionale	+					
A. trichomanes subsp. quadrivalens			+	+	+	
A. trichomanes subsp. trichomanes	+					
Athyrium filix-femina	+	+	+	+	+	
Blechnum spicant	+	+	+	+		
Cryptogramma crispa			+			
Dryopteris aemula				+		
D. affinis subsp. affinis	+		+	+		
D. affinis subsp. paleaceolobata		+		+		
D. borrieri	+			+	+	
D. cambrensis	+		+		+	
D. dilatata	+	+	+	+	+	+
D. filix-mas	+	+		+	+	+
D. oreades	+					
Equisetum fluviatile		+				
Huperzia selago		+	+			
Hymenophyllum tunbrigense				+		
H. wilsonii				+		
Lycopodiella inundata			+			
Oreopteris limbosperma	+	+	+	+		
Osmunda regalis	+	+		+		
Phegopteris connectilis			+	+		
Polypodium interjectum				+	+	+
P. × mantoniae				+		
P. vulgare	+			+	+	
Polystichum aculeatum				+		
P. setiferum	+			+	+	
Pteridium aquilinum	+	+	+	+		+

Ingleborough, Yorkshire Dales – 2 August

Bruce Brown

This was our third attempt, after two failures, at a Group visit up Ingleborough – and the forecast was dire with a yellow warning for heavy rain and thunderstorms. Nevertheless six members met at the lay-by above Hill Inn, Chapel-le-dale (34/745778). The top 100 metres



photo: M. Wilcox

In the boulder field, Ingleborough

Mike Canaway, Roger Golding, Bruce Brown,
Alison Evans, Tony Moverley

of the mountain was hidden in cloud, but we departed hopefully along the main path for the summit, eschewing tempting detours onto Southerscales limestone pavement as we passed by, whilst keeping a steady pace and determination to get up to the grit-stone boulder field just below the top at 670 metres altitude. The rain did come but was fortunately intermittent and we were on the leeside of the mountain, so we kept going and arrived clad in waterproofs and in low cloud at the boulders (34/743747).

For a number of years we had

been trying to sort out the buckler ferns hiding in the crevices here – did *Dryopteris expansa* and the hybrid *D. × ambroseae* grow amongst the many *D. dilatata* plants? Specimens with badly formed, very infertile spores had been noted from past recces, and we were able to find several more of these and confirm them microscopically, so we are confident that these are *D. × ambroseae*. Their appearance was somewhat intermediate between *D. expansa* and *D. dilatata*, with darkish scales. Previous finds of likely looking fertile plants with pale scales had not so far confirmed *D. expansa*, but this time we managed to locate one or two specimens with paler coloured, less papillate spores than *D. dilatata* as viewed under the microscope. Thanks go to Michael Wilcox and Alison Evans for help with microscopic work, and all three of us independently confirmed these differences, so we are now reasonably confident that *D. expansa* is present on Ingleborough, its most southerly location on the Pennines.

Some slight breaks in the cloud urged us to go on rather than retreat after lunch, so we contoured westwards to drop below the limestone crag band, and then found a gully enabling us to carefully descend the next crag band, slaty and more acidic. Contouring back to the east along its base with steep slopes beneath us was spectacular. Two good clumps of *D. oreades*, rare in this area, and a colony of *Polypodium vulgare* were at eye level on the crag. In parts the crag became a vertical rock garden festooned with roseroot, angelica, golden rod, scabious and least willow. Our fern count increased, with *Huperzia selago*, *Dryopteris filix-mas*, *Athyrium filix-femina*, *Cystopteris fragilis* and *Blechnum spicant*, and we also spotted a small clump of *Cryptogramma crispa*.

We started to descend over steep grass and gravelly areas, an ideal habitat for *Diphasiastrum alpinum*. An old record existed for Ingleborough, but it was only recently refound and now looked to be in good health (34/739748). Some rocky outcrops that we passed as we slid downhill yielded *Asplenium viride*, and among the boulders below were *A. trichomanes* subsp. *quadrivalens* and *Dryopteris borreri*. Now in bright sunshine, we aimed for the beck flowing into Meregill Hole (34/741755) to find a ferny paradise of 12 species, our new additions being *Gymnocarpium robertianum*, *Asplenium scolopendrium*, *A. ruta-muraria* and *Polystichum aculeatum*.

We couldn't resist detouring onto Southerscales pavement, finding *Oreopteris limbosperma* in a shakehole and a lot of *Dryopteris submontana* in the grykes. Even better, we confirmed a good plant of *Polystichum × bicknellii* (34/744767). So it was third time lucky for us on Ingleborough and what a fantastic outcome after a very unpromising start.

HORTICULTURAL SHOWS & OTHER EVENTS

RHS TATTON PARK FLOWER SHOW – 23-27 July

Yvonne Golding

Our exhibit in The Plant Societies Marquee was called 'A Victorian Fernery'. We tried to reproduce the feel of an old fernery using authentic props including old greenhouse lights, an old greenhouse door, a Victorian chimney pot and various other bits and pieces. All the ferns were displayed in old clay pots and these included ferns to grow in the garden, conservatory and greenhouse.

Members of the public loved our stand, one lady describing it as 'fifty shades of green', and they much admired the ferns, especially the magnificent *Cyathea gleichenioides* grown from spore by member Robert Crawford, *Cyathea tomentosissima* with its delicate dissected fronds (now considered by some to be a variety of *C. cooperi* originally from Fernatix), *Blechnum brasiliense*, which had many pink-flushed new fronds, the stag's horn ferns that were dotted about, and the many delicate adiantums on display. Another plant that captured the imagination of the public was the fertile adder's tongue fern (*Ophioglossum petiolatum*). Several gardening celebrities liked our stand, including Rachel de Thame and Matthew Biggs. Clearly the judges liked it too as they awarded the BPS a Gold Medal plus £525 prize money, which went a long way to offsetting the costs of putting on such an event. Because this was our first RHS Gold Medal we also received an actual Gold Medal, though this is disappointingly small! We were also able to sell BPS merchandise and memberships; seven new members signed up on the stand and many took away our leaflets to consider joining. But the main purpose of putting on such a display was to raise the profile of ferns and encourage more people to grow them. I think we achieved this!

Putting on an award-winning display requires team work and I would particularly like to thank member Shaun Barton who provided most of the props and built the stand. Also special thanks to Roland Ennos who drove the van and to Joan Watson who put me up in Manchester for the duration of the show. In addition, a long list of helpers worked hard on the stand, meeting the public every day and promoting the BPS – Ann Haskins, Alison Evans, Liz Evans, John Grue, Michael Hayward, Henry Folkard, Razvan Chisu, Robert Crawford, Steve Coleman and Roger Golding. Thank you all very much.



photo courtesy: Y.C. Golding

BPS stand at RHS Tatton Park Flower Show

Yvonne Golding & Shaun Barton showing Gold Medal certificate

The theme for the show this year was ‘Brazil’ and we were able to include a number of native Brazilian ferns in our display, including *Dicksonia sellowiana*, *Blechnum brasiliense*, *B. cordatum* and *Didymochlaena truncatula*. The sides of the backdrop were decorated with 2.5-metre fronds of *Lophosoria quadripinnata*. In addition to the customary labelling of the ferns we used a number of A5 explanatory fact sheets near the Brazilian ferns, a feature that seemed appreciated by both the public and the judges, who awarded the Society a gold medal this year. In contrast to the large plants on the formal display, we exhibited, on the corner of the merchandise table, a small Wardian case containing a six-year-old sporeling of the New Zealand fern *Leptopteris superba*. Plans to show a mature *Leptopteris* had to be abandoned last year when I estimated that its case would occupy half of our stand space! A fact sheet gave details about Wardian cases and about the fern itself. Stephan Buczaki, who was judging the exhibits, commented on the Wardian case and also on the Welcome pack that we give to new members. The stand again included an A1 poster of the fern life-cycle. The educational features on our display were chiefly responsible for our gaining the Charles H. Curtis Cup for the second time, an award given for the exhibit with “the greatest horticultural interest and/or educational interest in the show”. This is only the third time since the award was introduced in 1933 that it has been won by a specialist society. The stand attracted a lot of interest from members of the public. Three new members were recruited.

In the competitive section we were pleased to have two members exhibiting for the first time, particularly as Yvonne Golding had moved to distant Hull and was not able to exhibit. She was, however, able to loan us two of her splendid ferns for the stand. Robert Crawford won the BPS challenge cup and Steve Coleman the Happiland trophy for the highest number of first prizes in the other classes. Richard Keyes judged.

This year’s winners of the competitive classes were:

- Class 8 Individual Championship and BPS cup – four British ferns (dissimilar), two foreign ferns hardy in Great Britain and two greenhouse ferns (dissimilar):
1st Robert Crawford, 2nd Alison Evans, 3rd Brian Russ (4 entries)
- Class 9 One foreign fern hardy in Great Britain:
1st Steve Coleman, 2nd Alison Evans, 3rd Audrey Smith (7 entries)
- Class 10 One British fern; any species or cultivar:
1st Steve Coleman, 2nd Brian Russ, 3rd Audrey Smith (6 entries)
- Class 11 One greenhouse fern:
1st J. Abbott, 2nd Alison Evans, 3rd Steve Coleman (4 entries)
- Class 12 One *Asplenium scolopendrium*:
1st Audrey Smith, 2nd Steve Coleman, 3rd Brian Russ (3 entries)
- Class 13 One *Polypodium*:
1st Steve Coleman, 2nd Michael Hayward (2 entries)
- Class 14 Three ferns of the same kind (genus); species or cultivars:
1st Brian Russ, 2nd Alison Evans, 3rd Steve Coleman (3 entries)

We welcomed two new members, Paul Evans and Raz Chisu, to those serving on the BPS stand. My thanks are also due to Steven Coleman, Robert Crawford, Alison Evans, Alec Greening, Ann Haskins, Trevor and Ruth Pearce, Michael Radley, Harvey Shepherd and Robert Sykes. Growing the ferns, arranging transport, assembling and breaking down the stand and manning the stand for the four days of the show is a great team effort and we felt that our hard work was well rewarded this year. There is always room for more volunteers, particularly as some move out of the district and others are less able to commit to the show. This year sleep-overs were arranged for four volunteers, so distance is no object. The dates for the next show are 20th to 23rd August 2015.

SECRETARIAL NOTES

Please note: names and contact details of all officers can be found on the inside of the front cover of this Bulletin. Much of the information below is also on our website www.eBPS.org.uk.

ANNUAL GENERAL MEETING 2015 – The 112th AGM will take place on Saturday 11th April 2015 at Ness Botanic Gardens, Wirral at 2.15 p.m.

SUBSCRIPTIONS 2015 – Subscriptions were due on 1st January and should be paid to the Membership Secretary, Alison Evans. Current rates are given inside the front cover of this issue. Cheques should be made payable to 'The British Pteridological Society'. Payment can also be made by **PayPal** via our website. **Standing Order** forms are available from the Membership Secretary and the BPS website. Standing Orders may be paid on 1st January or 1st February. In either case, membership is deemed to be from 1st January to 31st December.

Members who do not amend their Standing Orders with their bank and pay at the old rate shall be notified that they will not receive the *Fern Gazette* until such time as their Standing Orders are updated. Members still paying even earlier rates shall be notified that their name will be removed from the Membership List until the Standing Order is updated or cancelled. Any monies received from old Standing Orders will be treated as a donation.

GIFT AID – Since 2003 the BPS has been a registered charity. This enables us to claim back from the Inland Revenue 20p for every pound paid in the annual subscription for each member who authorises us to do so. In 2014 we were able to claim for 207 members, which should bring in £1,200. While this is obviously an extremely valuable addition to the Society's annual income, it could be considerably more if all eligible members authorised it. All that is required is a minimal amount of form filling and a second class stamp. **Even better, the form has only to be filled in once.** The small number of provisos is set out below:

1. Gift Aid is available only to members who reside in the UK.
2. Members on whose subscription Gift Aid is claimed must be paying income tax or capital gains tax at least equal to the amount claimed.



photo: A.J. Evans

BPS stand at Southport Flower Show

Steve Coleman with the Happiland Trophy, Robert Crawford with the Challenge Trophy,
Michael Hayward with the Curtis Cup

3. Members whose subscriptions are allowed as an expense in connection with their employment may not claim Gift Aid.

If the Inland Revenue allows us to claim relief on your membership subscription please authorise us to do so. It's the equivalent of a yearly donation to the Society of £5 for a full membership and £4.20 for an optional membership.

PUBLICATIONS BY AIRMAIL – Our journals can be sent by airmail to overseas members, provided that they advise the Membership Secretary and pay an additional subscription to cover airmail postage. See inside front cover for rates.

E-MAIL ADDRESSES – These are published in the Membership List “for members who have a relatively stable e-mail address and who keep up-to-date with their messages”. A supplementary list and amendments are published in the *Bulletin*. To have your e-mail address added, changed or removed, please contact the Membership Secretary by e-mail.

NOTIFYING CHANGES OF ADDRESS – Please inform the Membership Secretary of changes of address and telephone number. She is responsible for notifying any other officers and appointees who need to know.

CODES OF SAFETY, CONDUCT AND DECLARATION FORM – All members attending BPS field meetings should be aware of the Society's *Safety Code* (see 2012 *Bulletin* 7(5): 475), as well as the *Code of Conduct for the Conservation and Enjoyment of Wild Plants* (see 2012 *Bulletin* 7(5): 474), and are required to sign an annual Declaration form (circulated with the Autumn Mailing). Copies of these documents can also be obtained from the Meetings Secretary, Bryan Smith, or the BPS website.

PAYMENT OF EXPENSES – The Treasurer has *Rules for Seeking Reimbursement of Personal Travelling and Administrative Expenses* by Officers and Members acting on behalf of the Society. Forms for claiming these expenses can be obtained from the Treasurer.

COPYRIGHT – All contributors to the BPS journals are required to sign an agreement assigning ownership of copyright of the article, photograph etc. to the BPS. This has the aim of safeguarding the contributors' work from unlawful copying and use. It does not stop contributors from using their own work elsewhere provided that they acknowledge the original source of publication.

GREENFIELD FUND – This fund, set up as a memorial to one of our Society's great fern growers, Percy Greenfield, is used to finance approved projects, helping with the cost of necessary equipment, books and travel expenses. Percy Greenfield's interest leaned very much towards the non-scientific side of our activities and it is felt that he would have wanted this taken into consideration when decisions are made. Workers eligible for university or college grants and similar support are not therefore eligible for help from the fund. Anyone wishing to apply for this funding can find details on our website or contact the General Secretary.

CENTENARY FUND – This fund is used to promote the study of all aspects of pteridophytes – horticultural, scientific and educational, whether by amateurs, students or professional pteridologists. As such its scope is much broader and more flexible than the Greenfield Fund. Anyone wishing to apply for this funding can find details on our website or contact the General Secretary.

THE J.W. DYCE AWARD – This award was set up to honour the memory of Jimmy Dyce who was a member from 1935 until his death in 1996. The eighth J.W. Dyce award will be made at the AGM 2015 to the author(s) of the best paper, article, book or other substantial piece of work published during 2014 in any of the three BPS journals, on the BPS website or as a Special Publication. The award, which is a cash prize of £100, is open to everyone, whether professional or amateur pteridologist, horticulturalist or fern enthusiast.

PHOTOGRAPHIC COMPETITION – The BPS wishes to encourage members to take good photographs of ferns and fern-related items and make these available for the

enjoyment of other members and the general public. The second annual competition is open to all members of the Society who have an interest in photography and wish to share their fern images with others. Entries (which must be previously unpublished photographs) will be displayed at the AGM, and winning entries will be decided by members at the AGM. Winning entries will be included in a special feature in the *Pteridologist* following the competition. In addition, and after judging, any or all of the competition entries received may be displayed on the BPS website and in the Newsletter for general viewing. (All website images will be downgraded in resolution prior to display to discourage unauthorised copying.) Some entries will also be used in the BPS Fern calendar. Entries must be received by 31st March. See the last Autumn Mailing or our website for details.

MEMBERS' INFORMATION SERVICE – Members often require information and advice on many aspects of pteridophytes but are reluctant to ask or simply do not know where to obtain help. Queries from members on the identification or cultivation of ferns should be sent to the Horticultural Information Adviser, Matt Busby.

BACK NUMBERS OF JOURNALS – Our holdings of back numbers of our journals, although not complete, grow each year by 4 to 6 A4-sized boxes and shrink by about ten journals. This is a great pity as I have to have a cull every so often to fit them in my loft. The loft is now totally full so the Society will have to decide how many of each volume to keep to create space for future years, especially as we have a few more Special Publications in the pipeline. If people reading this and thinking they would like to have a few more of these valuable sources of fern knowledge were to download the list from the web or write to me immediately before they forget I think we could move a few more. As a special incentive I am again willing to sell the first colour *Pteridologist* (Vol. 3) and index at £9 including postage. Try your best to empty my loft. *Pat Acock*. BackNumbers@eBPS.org.uk

FOREIGN FERN SOCIETY JOURNALS HELD BY THE SOCIETY – The Society exchanges journals with a number of other fern societies in the world. We have a collection from societies in America, Australia, India and the Netherlands. If members would like to browse these, please contact Tim Pyner (t.pyner@btinternet.com) who holds the stock.

READING CIRCLE – The Society operates a reading circle for the *American Fern Journal*, a quarterly publication containing much information for those seriously interested in ferns. The *Fiddlehead Forum*, which publishes many 'ferny' items of interest to the amateur grower, accompanies it. To receive these journals contact Tim Pyner (t.pyner@btinternet.com).

SPECIAL INTEREST GROUP: CULTIVARS – The Cultivar SIG welcomes anyone with a specialist interest in cultivars. They organise field trips, speakers and garden visits. For information contact Tim Brock (tim.brock108@gmail.com) or Julian Reed (julianreed@waitrose.com).

BPS WEBSITE – The BPS wants to make its website the main platform for the flow of information from the BPS to its members and to the general public. The website provides information on the BPS itself and on any fern-related subject.

It is an important part of the philosophy of the website that it is inclusive and the BPS invites everyone to view, interact and contribute. The general public are invited to use the website and contribute to the forum and even create fern-related blogs without needing to join the BPS, although we always encourage new membership.

The website should be as interactive as is possible, so that we can facilitate all our traditional activities on-line. Nearly all the activities listed on this page are available on the website.

Please do have a look at <http://eBPS.org.uk/>. Feedback is actively sought, welcome and enjoyed.

PRESERVING OUR FERN HERITAGE – Many BPS members have collections of ferns that they have built up over the years. Some will contain rare plants and cultivars that are no longer easily available. We feel that it is important to preserve these plants and collections

where possible. Often, members give clear instructions as to how they want their collection to be dealt with if they are no longer able to care for it themselves, but this is not always the case.

Do you or a relative have a fern collection that can no longer be cared for? We have a network of volunteers around the country who can help in various ways, such as advice on how to maintain a collection, what value it may have, how to arrange sale of plants, or re-location to a public garden. Please contact Membership Secretary Alison Evans in the first instance, so that she can pass on your request to a volunteer local to you.

AMERICAN FERN SOCIETY – The AFS has had a reciprocal payment arrangement with the BPS for many years and this is available through their respective Membership Secretaries. See AFS advert on p. 99.

ROYAL HORTICULTURAL SOCIETY – Our Society is affiliated to the RHS. This enables a limited number of members to enjoy certain privileges in connection with RHS Shows, competitions and services. Some RHS Journals are available free to members at indoor meetings. Further information is available from the Treasurer.

BRITISH WILDLIFE – Concessionary individual subscriptions to *British Wildlife* magazine are available to BPS members: www.britishwildlife.com. This excellent journal occasionally carries articles on ferns and reviews fern publications. The December 2014 edition had a very good report on ferns in Scotland.

MERCHANDISE – Have you bought a BPS sweatshirt, polo shirt or fleece yet? These are all dark green with a small embroidered BPS logo in yellow. Other items, such as BPS ties, metal badges, ferny greetings cards, bookmarks, pens, calendars, mugs, jute bags and take-in-the-field fern guides, are also for sale. A new line is Chelsea Physic Garden fern cards, and we have started re-stocking BPS T-shirts. On the website, you can now see photos of items for sale, and even order them using PayPal. Can't find your order form? Contact the Merchandise Organisers or look on the website for details. The Organisers also welcome suggestions for new stock.

BOOKSALES – It has become more difficult to find second-hand fern books at reasonable prices, so if you are thinking of selling any of your books please consider first offering them to the Society. Frank Katzer would also be pleased to receive any donated or bequeathed books that could then be offered to members at affordable prices. Please contact him by e-mail.

PLANT EXCHANGE – This scheme enables UK and EU members to dispose of surplus ferns to the advantage of those who would like to acquire some different species and varieties. Most of the plants offered are young sporelings. A request form is enclosed with the *Bulletin* mailing inviting members to list ferns they wish to offer or indicate any they are seeking or merely to request a copy of the consolidated list when compiled. On receipt of the list, members contact one another using the details provided. Contact the Plant Exchange Organiser for further details.

SPORE EXCHANGE – The current spore list is published on our website or can be obtained from Brian and Sue Dockerill.

NURSERY ADVERTISEMENTS – Members with nurseries that offer ferns are reminded that they may place an advertisement in the *Bulletin*, *Pteridologist* and on the website free of charge in return for the inclusion of a note about the Society in their catalogues/websites. The Website Editor can include an image if required. If members wish their nursery to be included, in the first instance please contact the General Secretary.

PUBLICITY & MARKETING – The on-line newsletter *Fern World* is now well established and keeps members up-to-date with BPS news. Please send the Publicity Officer any ferny news or anything you want publicised. Links to all our social media can be found in the left hand margin of any page on the website. Social media is administered by Liz Evans except for Flickr administered by Ashley Basil and Instagram administered by Razvan Chisu. Contact Liz Evans for further information.

NEW PUBLICITY AND MARKETING OFFICER NEEDED! – Liz Evans is standing down at the AGM, though she will continue with Social Media. If you think you might enjoy this post then please contact Liz Evans in the first instance.

NEW EDUCATION OFFICER – Alison Evans is standing down at the AGM. Subject to election her post will be filled by Peter Blake. The group would be very pleased to hear your ideas on how we can develop the educational role of the BPS. If you have information about any fern-related educational initiatives or resources that you have found useful please contact Peter.

FERN RECORDS – Members are encouraged to sign up and submit their records to Living Record, which can be accessed from the BPS website (<http://eBPS.org.uk/ferns/recording/line-recording/>). Alternatively records of ferns, horsetails, clubmosses and quillworts in the wild may be sent to the BPS Recorder, Fred Rumsey, who will forward them to the Botanical Society of Britain and Ireland (BSBI), or members may like to contact the appropriate Vice-county Recorders directly. Recorders' addresses are available from the BSBI website or BSBI yearbook, which goes to all BSBI members; for those without access to the Internet or yearbook please contact the BPS Recorder for details. The BPS recording card is available on our website or directly from Fred.

NEW REGIONAL GROUP FOR NORTH WALES – We are pleased to welcome David Hill on board who has offered to cover North Wales. This brings our total number of BPS regional groups to ten, which is pretty good. Contact David at NorthWales@eBPS.org.uk.

FORTHCOMING EVENTS IN 2015:

SOUTHPORT FLOWER SHOW, 20th-23rd August – Why not spend a few hours or a day helping to look after the Society's stand? You do not need to be an expert on ferns or fern growing, just prepared to spend a few hours or a day with us. Expenses are available, as well as free entry to the Show. If you grow ferns, why not consider entering your best specimens; Southport is one of the few shows with amateur classes for ferns. Details are available from Michael Hayward, 6 Far Moss Road, Blundellsands, Liverpool L23 8TQ; mhaywardL23@blueyonder.co.uk.

FERN COURSES IN 2015:

ROYAL BOTANIC GARDEN EDINBURGH, 13th June – Fascinating Ferns: a 1-day course at Benmore in Argyll. Tutor: Heather McHaffie. To book, contact RBGE education office 0131-248-2937 or e-mail education@rbge.org.uk.

FSC KINDROGAN FIELD CENTRE, Perthshire, 3rd-6th July – Fern Identification: a residential course. Tutor: Heather McHaffie. To book, contact FSC on 01250-870150 or e-mail enquiries.kd@field-studies-council.org.

FSC BLENCATHRA FIELD CENTRE, Lake District, 28th August - 2nd September – The Fern Guide: a residential course. Tutor: James Merryweather. To book, contact FSC on 01768-779601 or e-mail enquiries.bl@field-studies-council.org.

FSC PRESTON MONTFORD FIELD CENTRE, Shropshire, 11th August – Field Guide to Fern Identification: a 1-day course. Tutor: Mark Duffell. To book, contact FSC on 0845-3307378 or e-mail enquiries.pm@field-studies-council.org.

FSC RHYD-Y-CREUAAU – DRAPERS' FIELD CENTRE, Snowdonia, 17th-20th July – Fern Identification: a residential course. Tutor: Chris Metherell. To book, contact FSC on 01690-710494 or e-mail enquiries.rc@field-studies-council.org.

FSC MILLPORT, Isle of Cumbrae, Scotland, 26th-28th June – An introduction to ferns: a residential course. Tutor: Angus Hannah. To book, contact FSC on 01690-530581 or e-mail enquiries.sco@field-studies-council.org.

You can find details of all FSC ferns courses on our BPS website, follow the link EVENTS/FIELD STUDIES COUNCIL.

ANNUAL GENERAL MEETING 2014

MINUTES of the 111th Annual General Meeting of the British Pteridological Society held on Saturday 12th April 2014 at the Natural History Museum, London at 14.00 hrs.

IN THE CHAIR: The President, Prof. John Edgington.

PRESENT: Pat Acock, Paul Aston, Ash & Jo Basil, Peter Blake, Matt Busby, Rob Cooke, Brian & Sue Dockerill, Roland Ennos, Alison Evans, Liz Evans, Roger Golding, Yvonne Golding, Alec Greening, John Grue, Nick Hards, Andrew Harrison, Ann Haskins, Graham Hoare, Jennifer Ide, Stephen Jury, Janet Keyes, Elise Knox-Thomas, Bridget Laue, Jude Lawton, Andrew Leonard, Nicholas Lodge, Howard Matthews, Frank McGavigan, Mark Morgan, Karen & Stephen Munyard, Alison Paul, Anthony Pigott, Tim Pyner, Julian Reed, Martin Rickard, Paul Ripley, Fred Rumsey, Edward Salgado, Paul Sharp, Bryan & Gill Smith, Barrie Stevenson, Sandy Strang, Robert Sykes, Richard Treganowan, Alastair Wardlaw.

Item 1 – APOLOGIES FOR ABSENCE: Ian Bennallick, Peter Champion, Jonathan Crowe, Adrian Dyer, Peter Freshwater, Mary Gibby, Michael Hayward, Frank Katzer, Heather McHaffie, Alan Ogden, Barry Thomas.

Item 2 – APPROVAL OF THE MINUTES: Minutes of the 110th Annual General Meeting of the British Pteridological Society held on Saturday 6th April 2013 and published in the *Bulletin* (Vol. 7, No. 6) were approved and signed by the Chairman.

Item 3 – MATTERS ARISING: There were none.

Item 4a – REPORT OF THE GENERAL SECRETARY: This report by Yvonne Golding was published in the *Bulletin* (Vol. 7, No. 6). The President said that he thought the report was very interesting and suggested that we have an enormous amount to thank Yvonne for. In reply, Yvonne said that when she writes the report, she tries to make it an overview, as she then sends it to the Charity Commissioners together with the accounts, so that they know what we are doing.

Item 4b – REPORT OF THE TREASURER: The Society's accounts for 2013 were published in the *Bulletin* (Vol. 7, No. 6). The Treasurer, Gill Smith, pointed out that we had a large amount of cash last year from the Graham Ackers bequest, which was put into a special fund. Other than this, things were as usual, except for the very, very low interest rates. In answer to a query from the floor, she confirmed that the amount raised from the Graham Ackers bequest was more than the £15,000 placed into the special fund.

Item 5 – OFFICERS' REPORTS: The Officers' Reports were published in the *Bulletin* (Vol. 7, No. 6). The following updates were given:

Membership Secretary. The President explained that Alison Evans had taken over this post during the year and seemed to be very successful. Alison reported that we had now passed the 700 mark for members – we had 716. However, a review of our complimentary members was taking place and if they decide not to pay, then numbers could fall again. The committee had discussed the aim of reaching 1,000 members by our 125th anniversary in 2016, but it is one thing signing people up and quite another to keep them paying their subscription year after year. A member asked if the committee had any special project in mind to achieve this increase in membership but the only suggestion was that everyone recruited one member, or even two.

Meetings Secretary. Bryan Smith reiterated that there had been a tremendous range of meetings. He asked for suggestions of where members would like to go, and volunteers to lead meetings.

Conservation Officer & Recording Officer. John Edgington commented that these were both interesting reports.

Publications Secretary. Martin Rickard reported that the *Gazette* had had a make-over, the *Pteridologist* was becoming thicker and thicker, and the *Bulletin* was doing very well.

Pteridologist Editor. Alec Greening reminded members about last submissions for the next edition of the *Pteridologist*.

Education Officer. John Edgington said that this aspect was becoming a more and more important part of the BPS.

Project Officer & Website Editor. Anthony Pigott reported that he had made progress with getting on-line the parts of journals that we had electronically: the *Bulletin* was up-to-date, the *Fern Gazette* soon would be, and the *Pteridologist* would be later in 2014. It is particularly important to have back copies on line. Michael Hayward had scanned volumes 1-9 of the *Fern Gazette*, but if anyone felt like preparing volumes 10-15, he would be grateful. Roger Golding volunteered to do this.

Item 6 – COMMITTEE APPOINTEES' REPORTS

The Committee Appointees' Reports were published in the *Bulletin* (Vol. 7, No. 6). The following updates were given:

Spore Exchange Organiser. Brian Dockerill said that for the first time they had offered green *Osmunda* spores, but interest was very poor. They planned to obtain fresh donations and freeze them so that they would be available for a longer period.

Merchandise Organisers. Bryan Smith reported that the 2015 calendar was on sale. The 2016 calendar would be made up from some of the Photographic Competition entries.

Horticultural Information Adviser. Matt Busby said that if anyone had any problems, please send him their queries.

Archivist. Matt Busby reported that there were ongoing discussions about where the archives could be placed, and that we were negotiating with the National Archive. Yvonne Golding explained that they were very helpful and the service they provide to us is free. The deadline to move from Manchester Museum is November. She was trying to set up a meeting with all parties – the National Archive need to see the size of our archives and how they are stored etc.

Item 7 – ELECTIONS

Vice-Presidents. Matt Busby and Adrian Dyer had come to the end of their second three-year terms of office but were both standing for re-election for a further three-year term. Following a proposal by Frank McGavigan, seconded by Paul Ripley, they were both re-elected. Our other Vice-Presidents are Rob Cooke, Roger Golding, Jennifer Ide and Robert Sykes.

Officers. Ann Haskins had agreed to take on the role of Committee Secretary and her election was proposed by Robert Sykes and seconded by Yvonne Golding. All other Officers were available for re-election en bloc, proposed by Jennifer Ide and seconded by Rob Cooke. [General Secretary: Yvonne Golding, Treasurer: Gill Smith, Meetings

Secretary: Bryan Smith, Conservation Officers: Heather McHaffie and Fred Rumsey, Project Officer: Anthony Pigott, Publications Secretary: Martin Rickard, *Fern Gazette* Editor: Mary Gibby, *Pteridologist* Editor: Alec Greening, *Bulletin* Editor: Alison Paul, Website Editor: Anthony Pigott, Education Officer: Alison Evans, Publicity and Marketing Officer: Liz Evans.]

Elected Committee Members. Ann Haskins, having been elected as Committee Secretary, stood down as an elected committee member. All other committee members – Ian Bennallick, Peter Blake, Stephen Jury, Frank McGavigan and Julian Reed – were available for re-election, and this was done en bloc after being proposed by Fred Rumsey and seconded by Robert Sykes. Tim Pyner had agreed to join the committee and his election was proposed by Pat Acock and seconded by Julian Reed. Volunteers were requested from the floor to fill any of the four remaining vacancies on the committee. Bridget Laue volunteered and her election was proposed by Paul Sharp and seconded by Frank McGavigan.

Committee Appointments. There were no changes to report.

Item 8 – Appointment of Independent Examiners. Dr Nick Hards and Mr Alex Storie were prepared to continue in this capacity and Gill Smith thanked Alex for examining the 2013 accounts.

Item 9 – J.W. Dyce Award. Martin Rickard explained that this award was for the best published item but that this year there were two recipients – **Jeremy Roberts** for his article in the *Pteridologist* ‘Filmy-Ferns of the Bewcastle Fells’, and **Liz Evans** for producing the BPS e-Newsletter *Fern World*.

Photographic Competition results were announced after the end of the AGM due to the volume of votes to be counted.

Class 1 – 1st Alison Evans, 2nd Adrian Dyer, 3rd Sue Dockerill.

Class 2 – 1st Linda Greening, 2nd Linda Greening, 3rd Pat Acock.

Class 3 – 1st Sue Olsen, 2nd Sue Olsen, 3rd Yvonne Golding.

Overall winner – Sue Olsen.

Item 10 – ANY OTHER BUSINESS

a) Tim Pyner asked if anyone had any cultivated Mexican woodwardias. If so, could they let him know.

b) The General Secretary announced that the 2015 AGM would be held at Ness Gardens in the Wirral.

John Edgington closed the meeting at 2.55 p.m.

Ann Haskins
Committee Secretary

ACCOUNTS FOR THE YEAR ENDING 31 DECEMBER 2014

I have examined the accounting records maintained by the Treasurer of the British Pteridological Society. I certify that the Accounts are a true and fair view of the financial position of the Society.

Nick Hards, Independent Examiner, 6th March 2015

BPS ACCOUNTS FOR 2014

	2013	2014
ORDINARY ACCOUNT		
INCOME		
Subscriptions (<i>see note 1</i>)	£17,712.32	£16,415.38
Interest (<i>see note 11</i>)	£92.84	£103.43
Booksales (<i>see note 4</i>)	£3,511.29	£1,115.00
Special Fund - R.G. Ackers	£15,000.00	£0.00
Merchandise (<i>see note 4</i>)	£1,333.61	£1,054.46
Inland Revenue Gift Aid	£152.15	£1,494.86
Publishers Licensing Society	£557.37	£146.90
Donations (<i>see note 5</i>)	£139.31	£1,251.72
Plant sales & Spore Exchange	£179.20	£0.00
Prize Money (<i>see note 12</i>)	£150.00	£825.00
TOTAL INCOME	£38,828.09	£22,406.75
EXPENDITURE		
Pteridologist	£5,518.66	£6,947.26
Fern Gazette (<i>see note 10</i>)	£5,789.10	£5,463.15
Bulletin	£6,076.20	£5,538.55
Printing & Stationery	£1,235.00	£76.58
Administration & Postage	£777.45	£987.25
Subscriptions to Societies	£85.00	£85.00
Plant & Spore Exchanges	£232.28	£134.12
Meetings	£245.00	£140.00
Merchandise (<i>see note 4</i>)	£603.41	£1,205.91
Trustees' Expenses	£724.15	£617.90
Booksales (<i>see note 4</i>)	£843.72	£450.00
Special Awards	£100.00	£210.00
Autumn Mailing (<i>see note 8</i>)	£2,417.11	£569.00
Computer Leasing (<i>see note 7</i>)	£462.96	£342.96
Promotion & Advertising (<i>see note 2</i>)	£710.83	£622.77
Insurance	£60.00	£62.00
Donations/returned overpaid fees	£321.10	£199.00
TOTAL EXPENDITURE	£26,201.97	£23,651.45
Balance (income minus expenditure)	£12,626.12	-£1,244.70
Brought Forward from previous year	£20,720.66	£33,346.78
Total in Ordinary Account	£33,346.78	£32,102.08

CENTENARY FUND (Restricted Account)		
Interest (<i>see note 11</i>)	£30.62	£19.74
Interest brought forward from previous year	£1,249.31	£779.93
Grant (<i>see note 6</i>)	£500.00	£416.50
Donation (<i>see note 5</i>)	£0.00	£0.00
Total Interest	£779.93	£383.17
Capital brought forward from previous year	£5,583.73	£5,583.73
Total in Centenary Fund	£6,363.66	£5,966.90

GREENFIELD FUND (Restricted Account)

Interest (<i>see note 11</i>)	£10.63	£6.46
Interest brought forward from previous year	£1,321.18	£1,031.81
Grant (<i>see note 6</i>)	£300.00	£0.00
Donation (<i>see note 5</i>)	£0.00	£0.00
Total Interest	£1,031.81	£1,038.27
Capital brought forward from previous year	£1,051.00	£1,051.00
Total in Greenfield Fund	£2,082.81	£2,089.27

PUBLICATIONS ACCOUNT

Brought forward from previous year	£13,278.65	£12,537.48
Income	£3,474.90	£5,897.92
Interest (<i>see note 11</i>)	£59.50	£38.89
Expenditure	£4,275.57	£3,278.00
Total in Publications Account	£12,537.48	£15,196.29

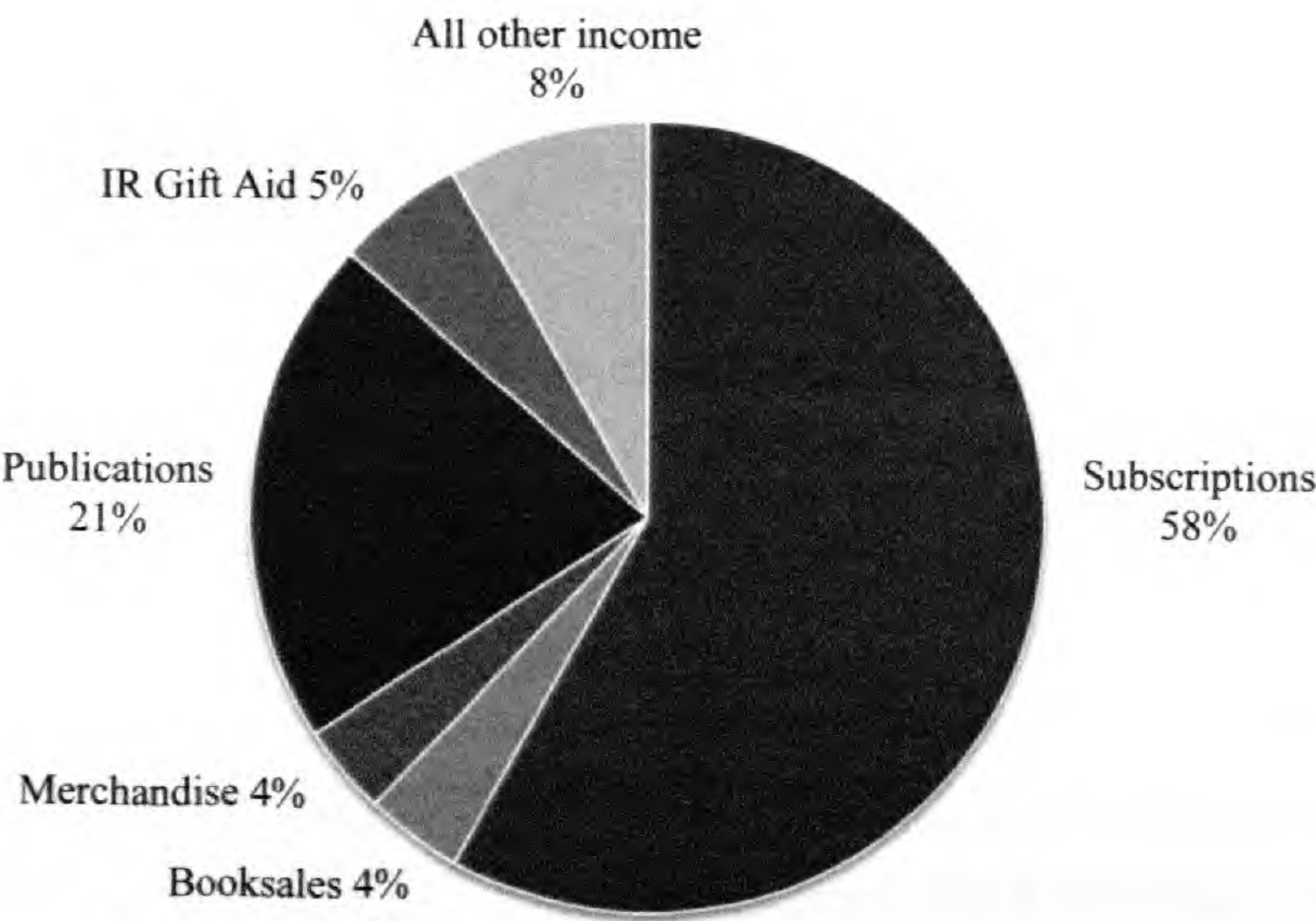
TOTAL FUNDS FOR YEAR ENDING 31 DECEMBER 2014

Ordinary Account	£33,346.78	£32,102.08
Centenary Fund	£6,363.66	£5,966.90
Greenfield Fund	£2,082.81	£2,089.27
Publications Account	£12,537.48	£15,196.29
Total Funds	£54,330.73	£55,354.54

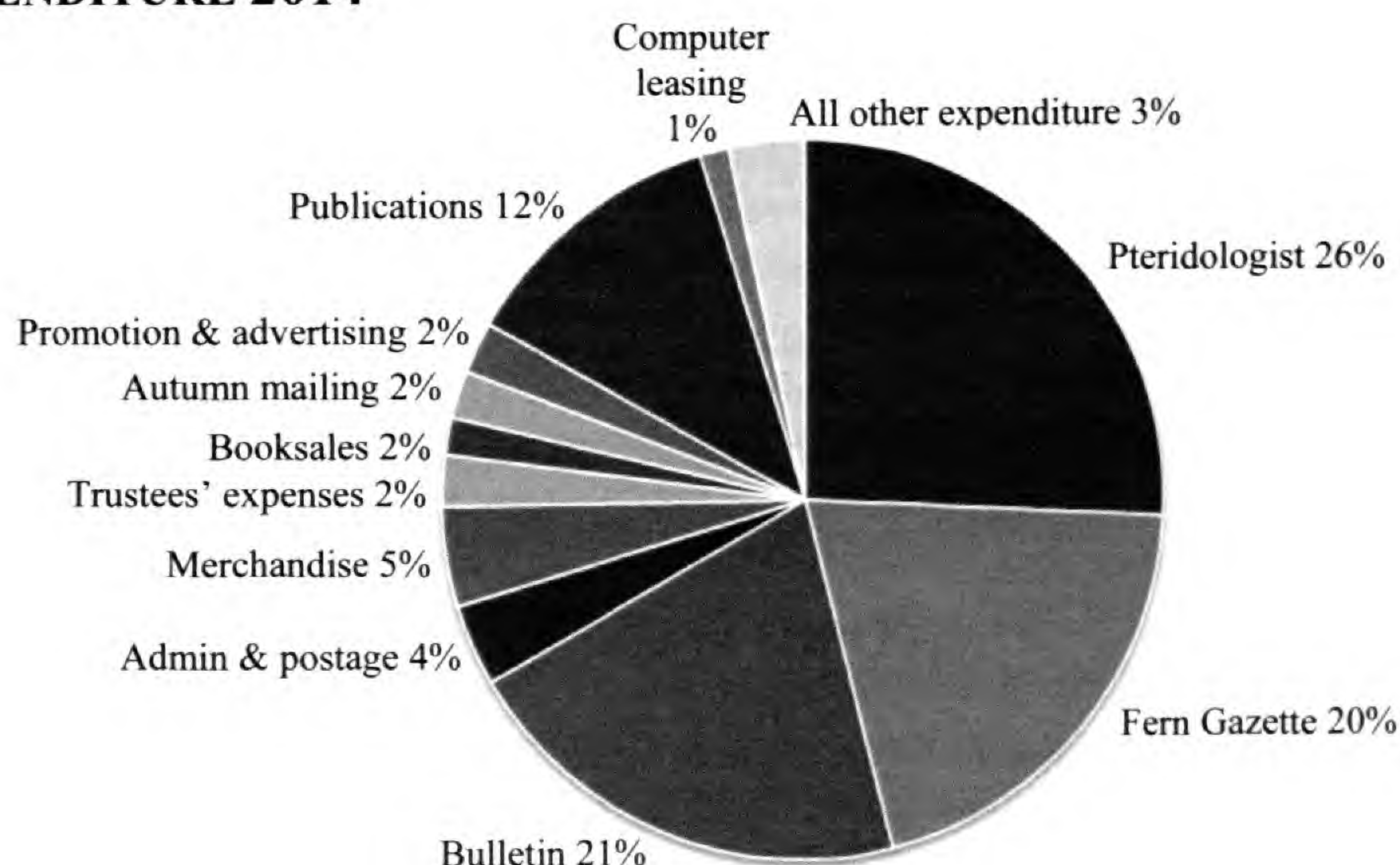
REPRESENTED BY

Charitable Organisations Investment Fund (COIF)	£39,761.68	£39,930.20
NatWest Bank & Others	£14,569.05	£15,424.34
Total Funds	£54,330.73	£55,354.54

INCOME 2014



EXPENDITURE 2014



NOTES TO THE ACCOUNTS

- The accounts reflect the subscriptions actually received in the year.
- The Society has been promoting and advertising the Society where possible via the RHS, BBC, county and national shows and public display days. Details of these appear in the *Bulletin*.
- The Society has stock: FSC Key to Common Ferns – 40 valued at £80. What's that Fern? booklet – 50 valued at £100.
Back issues of the *Bulletin*, *Fern Gazette* and *Pteridologist* valued at approximately £2,000.
Merchandising valued at approximately £2,500 & capital of £1,570.74.
Booksales – new and second-hand books valued at approximately £6,000 & capital of £4,460.19.
BPS Special Publications (no. copies): no.3. Cultivation and Propagation (194) £970;
no.4. History of British Pteridology (225) £900; no.5. BPS Abstracts & Papers (326) £1,304;
no.6. CD Rom – BPS Minute Book (6) £60; no.8. New Atlas of Ferns (2) £20;
no.9. Fern Books Before 1900 (213) £3,195; no.10. Occasional Paper of the BPS (15) £37.50.
no.11. CD of Fern Gazette Vols 1-9 (15) £195; no.12. Who Found Our Ferns? (160) £2,400;
no.13. Dryopteris affinis complex (20) £160.
- Full details of Merchandise and Booksales Accounts can be obtained from the Managers.
These accounts are checked annually by the Treasurer.
- Only the 'Interest' section of the Restricted Funds is available for payment as grants; these funds will be 'topped up' with money from donations from time to time.
A bequest of £1,000 was received.
- A Grant of £416.50 was given to provide heavy duty labels for the ferns in the Trewren garden – see article due in the 2015 *Pteridologist*.
- Computers for specific BPS officers' use are being leased from Dell Computers. When the lease expires, no further machines will be leased.
- A large proportion of the Autumn Mailing was sent out to members via e-mail. This saved the Society valuable funds on postage.
- All payments received via PayPal into the bank are net of charges – for the year 2014 these were £180.63, still considerably less than previous Credit Card charges!
- The second 2013 *Fern Gazette* issue was sent out members in January 2014. The two 2014 issues were also produced during this year bringing the *Gazette* up-to-date.
- Interest rates have still been very low. Only £168.52 interest was added to our account this year, less than in 2013. This was the fifth year with little interest added to the funds, with no viable alternative available.
- The Society was very successful in competitions during the year, £525 prize money was won at the RHS Tatton Park Show, £300 prize money was won at the Southport Show.

Gillian Smith, Treasurer

REPORTS OF OFFICERS & COMMITTEE APPOINTEES FOR 2014

OFFICERS' REPORTS

GENERAL SECRETARY – Yvonne Golding

In 2014 the first committee meeting of the year was held in January at The Natural History Museum in London (NHM). The 111th Annual General Meeting was held on Saturday 12th April at the NHM. Changes in our Committee included the appointment of our Committee Secretary Ann Haskins. In addition, Tim Pyner and Bridget Laue were elected onto the committee. This new committee met for the first time in May at The University of Hull and in October we were back to the NHM. As you can see, your BPS Committee continues to travel around the country in order to run your Society.

At our AGM the Publications Subcommittee awarded the seventh J.W. Dyce award jointly to Liz Evans for her BPS on-line newsletter *Fern World* and to Jeremy Roberts for his article in *Pteridologist* 'Filmy Films of the Bewcastle Fells'. The award (of £100) is open to anyone who writes an interesting and informative article for any of our publications.

It is always a sad duty to report on the deaths of BPS members. In 2014 these included our much-loved long-standing member Clive Jermy who joined the BPS in 1959. Clive edited the *Fern Gazette* for almost 25 years, organised many field meetings, was BPS President 1982-1985, Vice-President 1987-1993 and was made an honorary member in 2002. Other pteridologists of note were Prof. Dr Bert Hennipman of The Netherlands who was a member from 1971 to 2003, Dr Carl Chuey of Youngstown State University who was a member from 1976 to 2007, and finally, Dr Frances Jarrett who died in Jan 2014. Dr Jarrett was Head of the Fern Section at Kew and a BPS member for many years; she was on the committee and also did a year or two as assistant editor of the *Gazette*.

Looking back over the year I never fail to be amazed by what the BPS manages to achieve with a group of trusty volunteers who give their time for nothing other than the satisfaction of keeping the Society going for its members and to raise the profile of ferns to the general public. It has been a most exciting year with the launch of our new website, which is first-rate and has changed the image of the BPS to the outside world, fulfilling our remit as a charity. We feel sure that membership and merchandise traffic will increase via the easy-to-use website and together with the expansion of our Social Media the BPS will become better known and hopefully expand the age range of our membership – i.e. more younger people! And all this at minimal financial cost to the Society. The web team is to be congratulated.

We've also had a very successful year at shows, winning our first Gold Medal at RHS Tatton Park Flower Show, and a Gold Medal plus The Charles H. Curtis cup at Southport Flower Show. Having a presence at shows is not only enjoyable for us (with the additional prospect of winning prizes) but enables us to reach a large number of horticulturalists so we can enthuse about ferns. Again this was achieved through teamwork.

On the Education front, apart from Tatton and Southport Flower Shows, we have been involved with events at nine different venues up and down the country. These ranged from a BioBlitz at Logan, developing a fern garden at Blencathra and working with the BSBI in Scotland, to organising fern walks at Nymans in West Sussex. This range of events is a remarkable achievement for a small team of members. My small contribution was at Thwaite Botanic Garden where I've developed a fern bed and have started a British Native Fern Trail; I had a BPS stand at Thwaite Open Days and gave a talk on ferns at The Friends' AGM.

Our services to members are better than ever: the Plant Exchange and Spore Exchange are expanding and Booksales and Merchandise bring in much-needed funds. These services are run by individuals who are to be congratulated but these services still require the help of others by providing plants and spores. Booksales benefit when members donate books but even when we buy book collections a small profit can usually be made and Merchandise keeps us looking the part at shows and events and further helps to raise our profile. Do you need a new tee-shirt?

The meetings programme is second-to-none, enabling members to see ferns in many different locations both at home and abroad. Again well run by our Meetings Secretary who co-ordinates a huge team of members without whom none of this would be possible. In 2014 I enjoyed a fantastic week in La Palma, a nostalgic weekend on the North York Moors and visits to The Savill Garden and Chelsea Physic Garden, neither of which I'd been to before. I also spent an enjoyable day at Harlow Carr with the Yorkshire Fern Group. Apart from members enjoying themselves on fern trips up and down the country they are also helping to provide valuable fern records. Revisiting sites on a regular basis provides important data about fern populations, for example The Lizard *Isoetes* survey.

Our journals continue to be full of interesting ferny reads. I've particularly enjoyed the review articles in *The Fern Gazette*. This is only possible because of the diligence of the editors in working hard at getting copy and the members that provide that copy. Then there are the unsung heroes who do the unenviable jobs like taking the minutes, storing all our journals in their loft, looking after what is now an expanding membership database, and, most importantly, keeping our finances on the straight and narrow so we can do much of the above!

Everybody plays their part in making the Society what it is today. Why not join the committee and help us to do even more?

Thank you and Happy Ferning in 2015!

MEMBERSHIP SECRETARY – Alison Evans

One of our major changes in 2014 was as a result of our review of 'complimentary' members, and consideration of whether we were having a return contribution that warranted our continued gift of membership. Of 32 complimentary members, three were of one-year duration as a thank-you to review authors, and 11 were either legal requirements or societies that sent us journals in return. Eight of them were museums or other institutions from the era when it was difficult to make international payments. Following the review we wrote to 21 of them to ask if they wished to continue as members and explaining that we would have to ask them for a subscription. Only one institution became a subscriber.

We had 84 new members joining in 2014, 67 of them for the 2014 subscription year, and 17 who joined late in the year to start their membership in 2015. Five members have joined in the first week of 2015. Sadly, one member died during 2014, 15 resigned and 41 members lapsed, failing to pay their subscriptions.

As of 7th January 2015, we had 649 'active' members, plus 55 family members. This was made up as follows:

Full members:	436, plus 52 family members
Optional members:	128, plus 3 family members
Complimentary members:	11
Honorary members:	7
Students:	8
Subscribers:	59

Fifty-one members chose to pay through the American Fern Society.

It is encouraging that our numbers increased slightly in 2014, despite shedding 20 complimentary members. It seems that our new website, with the facility to join on-line using PayPal, is having a positive effect on recruitment, but if we are to reach our target of 1,000 members, we still need all our members to spread the word!

MEETINGS SECRETARY – Bryan Smith

The Meetings Subcommittee held a planning meeting in February but, as in previous years, most of our business has been conducted by e-mail.

We began the busy programme for 2014 with a trip to La Palma (organised by Yvonne Golding) which was enjoyed by several members new to overseas trips. The successful programme continued with the April AGM (organised by Pat Acock and which included

talks on BPS visits overseas and a new photographic competition), a week in Capo di Ponte, Italy in May (organised by Paul Ripley), a weekend in South Wales in June (organised by Brian and Sue Dockerill), and a weekend on the North York Moors in September (organised by Bruce Brown). The Autumn Indoor Meeting was held at Chelsea Physic Garden in October (organised by Mary Gibby). Two Cultivar Group meetings were held nationally – a day in June at The Savill Garden (organised by Julian Reed) and a day in October studying polypodies at Kyre (organised by Martin Rickard). Also, two flower shows were supported this year - the RHS Tatton Park Show in July (organised by Yvonne Golding) and the Southport Flower Show in August (organised by Michael Hayward). Typically, the field meetings attracted 20 – 30 people, and the indoor meetings 40 – 50 people. Reports on all of these meetings can be found in this *Bulletin*.

Details of meetings planned for 2015 were circulated with the Autumn Mailing and include visits to Rutland (June), Vercors and Verdon Gorge, France (July), and North Wales (September), as well as the AGM meeting at Ness Botanic Gardens, Wirral (April) and the Autumn indoor meeting at Glasgow Botanic Garden (October). The BPS Web-team hope to arrange a Website training day (May), the Cultivar Group will be holding a one-day field meeting in Oxfordshire (July) and, as usual, the BPS will be at the Southport Flower Show (August). Once again, a very full programme!

As always, the success of the meetings is dependent on members who voluntarily give up their time and effort in the organisation. This is no mean feat, but the rewards are well worth it. If you fancy organising a meeting, please do let one of us know. You won't be going it alone, as we always allocate a subcommittee member as a liaison point for each meeting. Even if you don't fancy leading, please do let us know if there are any places you would like to visit and study ferns.

Finally, I would endorse the fine work that Regional Meetings Organisers do in arranging trips 'on your doorstep'. Even if you are visiting an area on holiday, it is worth checking the BPS website or contacting the Regional Organiser to see if there's a meeting you can join.

CONSERVATION OFFICER – Fred Rumsey

2014 saw the publication of the Vascular Plant Red List for England. In the nine years since the production of its GB equivalent better analytical methods that could give more accurate assessments of decline had been developed and were employed. As might be expected some montane species at the edges of their range in England, namely *Cryptogramma crispa*, *Equisetum pratense*, *Lycopodium annotinum* and *Polystichum lonchitis* are much more threatened here than in GB as a whole as they have so few sites. *Woodsia ilvensis* is now regarded as Critically Endangered, up from Endangered, based solely on its population size – the introduced plants in Teesdale, which are surviving well and monitored by BPS members, are not yet considered self-sustaining and therefore were not included in this assessment. Another four more widely distributed species have shown greater declines here than in GB as a whole: *Botrychium lunaria*, *Lycopodium clavatum*, *Pilularia globulifera* and, perhaps most surprisingly, *Gymnocarpium dryopteris*. Of the five species now restricted within GB as native to England, members of the Society have been active in recent survey work on two, *Dryopteris cristata* – downgraded from Critically Endangered to Endangered and *Isoetes hixtrix* – retained as Vulnerable but additionally on decline as well as restricted range. *Diphasiastrum* × *issleri* (as *D. complanatum*) is regarded as Critically Endangered. Confirmation of the identity and extent of the few Northumbrian examples that have been named this will form the basis of a small grant application in 2015.

The Wildlife and Countryside Act, 1981 quinquennial review (QQR 6) is currently under consultation. This act, which under Schedule 8 protects species considered liable to persecution and under Schedule 9 makes the deliberate introduction of named invasive species illegal, has many proposed changes in this round. *Dryopteris cristata* was proposed for inclusion, as was *Polystichum lonchitis* on an England only basis. At the same time it had been suggested that *Cystopteris dickieana* be de-scheduled. In my submission I argued against these changes – I eagerly await the outcomes of the consultation process to see whether my views prevailed.

RECORDING OFFICER – Fred Rumsey

Once again a big thank you to all who have sent me and their local BSBI recorders records this year. The latter will be particularly grateful as the enormity of the task of getting full coverage for the next atlas, Atlas 2020 – now only five years away, sinks in.

Thanks to the interest and chivvying of Andrew Leonard we now have a mechanism by which BPS members can input and manage their own records, using Living Record, an on-line system developed in Hampshire. I would encourage anyone interested to sign up and see how they get on with this. Andrew and I would welcome feedback.

The Lizard *Isoetes* survey announced in this report last year was a great success – even if the weather hadn't read the script! A report will appear in the next *Pteridologist* and the data have helped with the conservation assessment discussed above. The Society's 2015 spring meeting in Guernsey will give us the chance to do a similar job there, getting good baseline data for future monitoring work.

The very sad passing of Clive Jermy and thoughts as to how we might appropriately and meaningfully mark his legacy have led to the suggestion that now would be an opportune time for the Society to repeat the *Pilularia* survey that he initiated 30 years ago. Evidence from England (see above) suggests a recent decline of this species for which we probably have an international responsibility; much of the data held by the BSBI however dates from the time of the previous survey. I will be seeking external funds to support this survey and hope that members can be persuaded to take on their local, or other sites of interest to them. I will be providing more information on this in the near future.

Interesting finds of novel taxa continue to be made. Martin Rickard found a spontaneous example of *Polystichum* × *arendsii* (*P. aculeatum* × *P. munitum*) in a derelict garden in Herefordshire. This is new to the British Isles and is the second hybrid involving the North American *P. munitum* to have occurred spontaneously in this country. The identification was confirmed by Rolf Thiemann who produced a very useful illustrated article on this and other hybrids in the 2013 *Pteridologist*.

Native taxa, particularly those in critical groups and hybrids that are more easily overlooked, have provided many new vice-county and otherwise significant records. For instance, the recently recognised *Dryopteris pseudodisjuncta*, nicely treated in the now all-but-sold-out field guide to the *D. affinis* complex by the late Ken Trewren, has been found in a second Scottish locality, on Arran, by Tony Church. Correspondence from Christopher Fraser-Jenkins would suggest that he now believes that he has collected it several times previously, including from Co. Waterford in Ireland. It will be good to get locality details for this and encourages me that now it is more familiar to people further records will follow. Amongst our rarer hybrids, the find of a second extant plant of *Asplenium* × *murbeckii* (*A. ruta-muraria* × *A. septentrionale*) on Arthur's Seat by Jim McIntosh while surveying a re-introduction of sticky catchfly particularly deserves mention. I should also mention the discovery by Helena Crouch and myself of *Dryopteris remota* in a roadside thicket near Wells, Somerset. Extinct as a native for about a century, this first record for England is of a plant almost certainly escaped from a garden.

My usual apologies to all those of you whose interesting finds I've not discussed here, please keep those records coming though, they are very much appreciated.

PUBLICATIONS SECRETARY – Martin Rickard

Once again the Society had an excellent set of journals for the year. Very sadly Mary Gibby has expressed a wish to stand down soon as editor of the *Fern Gazette*. Whenever she goes she will be greatly missed. Despite doubling as Society President for three years, she has seen the production of the *Fern Gazette* transformed from being significantly behind schedule to being up to date. This has been achieved by increasing the quantity and quality of material published. The *Pteridologist* and *Bulletin* are now well and truly established. The Editors of both journals do a terrific job; hopefully they will continue long into the

future. Remember that the *Pteridologist* feeds off members' news, experiences and adventures. Keep it in mind if you think you have an idea to write about. The *Bulletin* copy is Society business, so to a large extent copy is predictable. I wonder how many members realise the amount of effort our editor, Alison Paul, has to put into bullying dozens of contributors like me to get their contributions in on time – I'm writing this at 9.00 p.m. for a deadline tomorrow!

Special Publications seem to go from strength to strength. John Edgington's *Who found our ferns?* has been a great success, and this spring our next book will appear. This is an amazingly well researched account by Michael Hayward of nature-printing, with special reference to the Jones Nature Prints. We are expecting this to be launched at the AGM at the Ness Botanic Gardens this spring. The book includes a complete set of the Jones nature-prints on a resource disc – about 300 of them! Buy it early!

In addition, the Society has agreed to upgrade two of our previous Special Publications that are now out of print. *Some taxa within the Dryopteris affinis complex, a field guide* is being revised as understanding of the complex subject evolves. This sold out in less than a year! *Polystichum cultivars* will also hopefully be reissued later in 2015 or 2016 with an additional 16 pages of colour photographs. I am still collecting material so if any member has good, diagnostic, digital photographs of British native *Polystichum* cultivars I should be very grateful to receive them as soon as possible at h.m.rickard@btinternet.com.

FERN GAZETTE EDITOR-IN-CHIEF – Mary Gibby

Two parts of the *Fern Gazette* were published during 2014, in spring and autumn. These completed Volume 19 of the *Gazette*. Again, as is now the custom, each part included a review article. We experimented with colour for the review on 'Bracken and the glassmaker's art' to demonstrate the subtle differences in colour between glass made from bracken ash and bracken salts. Colour plates were welcomed by the committee and by many readers, and so in future we will continue to publish in colour. Volume 20 Part 1 – the first part for 2015 has already appeared, as we had received a lot of copy and did not want to hold up publication. My thanks go to all involved in producing the *Fern Gazette* – the editorial board, review editors, copy checkers and especially Andrew Leonard, the production editor. Finally, I hope to step down from my role of Editor-in-Chief during 2015, and welcome any suggestions for a replacement. Thank you.

PTERIDOLOGIST EDITOR – Alec Greening

The 2014 issue of the *Pteridologist* marked the beginning of Volume 6. This means that I have survived seven years as Editor, albeit with Martin Rickard in the first few years. Hopefully, I have managed to develop a style that is both modern and traditional, and that pleases the majority of members of the BPS. Last year I mentioned that the 2014 edition might not be as big as the previous year. How wrong I was. Again it managed to run to 88 pages plus covers.

My proof readers rose to the occasion and I must thank them all. They do a sterling job. However, there were a couple of errors, which only three members commented on, and they were all my fault. I must apologise for two images that were wrongly captioned. This edition was slightly late, for various reasons, but I hope that the timing will improve in 2015. The next edition will certainly not be as big as previously, but it should as usual be entertaining and informative.

BULLETIN EDITOR – Alison Paul

The 2014 *Bulletin* is another big issue, with 100 pages, reflecting the continuing impressive number and range of the Society's activities. Over fifty members have contributed to this issue and I should like to thank them for their rapid responses to my often last-minute queries!

WEBSITE CO-ORDINATOR – Liz Evans

A small team of enthusiastic individuals had a dream in early 2014 to modernise the BPS website and keep it relevant in a rapidly changing on-line world. With some hard work and determination, we were able to make this happen. We wanted to be able to quickly and easily update the information on the site, make sure as many people as possible would be able to

contribute, and to ensure that we were reaching not only existing members but a new audience of fern enthusiasts. Rather than all the work falling on to the shoulders of one person, we decided it would be better to have a team, with one person as the spokesperson to the committee.

The new website went fully operational under the same domain name eBPS.org.uk in June 2014. It has cost the BPS less than £100 to set up and the hosting of the site is still free. We will have to pay about £8 a year to keep the registration of our domain name but that appears to be the total of the running costs. Some of the features of the new site are as follows: all the useful data and some features from the old site, which was transferred over, a user-friendly attractive site with good navigation, a regularly updated News section, on-line payment for merchandise, membership and Special Publications, an on-line fern recording facility, very up-to-date events listing, on-line spore ordering and plant exchange, a facility for Blogging, and easy access to our social media.

We would like to have more contributors, more page owners and more involvement with the site. We want the BPS to feel that it is their website and take an active role in contributing content to it. This is a fundamental part of the philosophy of the new website.

EDUCATION OFFICER – Alison Evans (on behalf of the Education Subcommittee)

(events marked with an asterisk are reported more fully elsewhere in this Bulletin.)*

Planning meeting – 15 February. Bridget Laue again kindly hosted our subcommittee meeting, attended by Heather McHaffie, Frank McGavigan, Yvonne Golding, Bridget Laue and Alison Evans. Unfortunately the two new members of our group, Jude Lawton and Peter Blake, were unable to join us. Working with other organisations, and supporting BPS members in ‘spreading the word’ about ferns were our main themes. We are aware of having to plan within our limited resources, particularly as several of us have other time-consuming roles in the BPS. We felt that it was important to raise awareness of our educational activities, so these were featured in the BPS on-line Newsletter in spring 2014.

Thwaite Botanic Garden open day – 18 May. Yvonne had a stand at this open day in the University of Hull Botanic Gardens, which have a 500-strong group of ‘Friends of Thwaite’.

Avery Hill Winter Gardens meeting – 31 May. There is a large Victorian glasshouse attached to Avery Hill College, Eltham, south-east London, owned by the University of Greenwich. The plan was to restore the glasshouse, including a Victorian hothouse for ferns. Ferns rescued from Newcastle University’s Moorbank Botanic Garden had been taken there to start the collection, and the BPS was asked for help in supplying ferns and advice, as well as ongoing help with maintenance and visitor information. Jude attended an Open Day on 31st May, along with John Edgington and Roger Golding, and we were planning ways in which we could provide educational and horticultural input, in return for publicity for the BPS. Unfortunately, the University of Greenwich has now decided to sell the site, although the house and conservatory must remain open to the public. Jude is standing by to rescue the ferns if necessary, and we are hoping that the purchaser will continue with the idea of recreating a ‘Victorian’ Fernery there.

***BioBlitz at Logan Botanic Garden, Galloway – 28 June.** Bridget Laue and Heather McHaffie participated in a BioBlitz at Logan, one of the regional gardens of the Royal Botanic Garden Edinburgh, to help raise the profile of ferns in this most fern-rich garden.

***Tatton Park RHS Show – 22-27 July.** Yvonne Golding organised a BPS stand here, the theme being the Victorian Fernery, and won a Gold medal. Our educational leaflets and demonstrations of spore sowing were much appreciated by members of the public.

***Introduction to ferns: Cramond, Edinburgh – 27 July.** This meeting was organised by Jim McIntosh of the BSBI to introduce BSBI members to ferns, and Paul Sharp and Bridget Laue went along to help. After Jim’s general explanation about ferns and how to identify them, we walked along the River Almond at Cramond, on the western outskirts of Edinburgh. Although our fern list for the day was relatively short, the meeting seemed to be greatly appreciated by the beginners, who found it a very useful introduction to our native ferns.

***Geilston Garden, Argyll – 9 August.** Invited by Head Gardener Joanna Gough to this National Trust for Scotland garden, Frank McGavigan and Bridget Laue, with a few more BPS members, led an introduction to ferns. Frank gave a short talk on fern identification aimed at members of the general public. This was followed by a tour of the lovely garden by Joanna, giving everyone a chance to put their new fern identification skills into practice.

***Southport Flower Show – 13-17 August.** Michael Hayward once again organised a BPS stand here, the theme being 'Brazil'. Michael produced information cards on the Brazilian ferns, and also on the Wardian case – essential in bringing ferns back to England. These, together with our 'Welcome pack' and our educational leaflets seemed to impress the judges, as not only did Michael win a Gold medal, but also the Charles H. Curtis cup for the stand with the greatest horticultural and/or educational interest in the show.

FSC Blencathra Fern Garden – 16-17 August. Robert Crawford and Alison Evans continued with the maintenance of the educational fern garden at this Field Studies Centre, prior to James Merryweather's fern course there. James was able to use the garden for teaching, and was pleased with the progress achieved. We have developed a self-guided trail leaflet to help beginners to recognise our common native ferns, available from the Centre office.

Nymans Guided Fern Walks – 30-31 August. Pat Acock and Paul Ripley again helped Alison Evans on these guided walks for Nymans volunteers and members of the public. The ferns were in very good condition, and the walks seemed to be much appreciated.

Thwaite Botanic Garden – 7 October. Yvonne gave a talk entitled 'The private life of ferns' to The Friends of Thwaite Garden at their AGM, which earned the BPS an extra £50! She was helped by Neil Timm who gave a demonstration of raising ferns from spore and provided some ferns for sale. The evening was very well attended.

BSBI and Botanical Society of Scotland Annual meeting – 1 November. Frank McGavigan and Bridget Laue again presented a BPS exhibit at this meeting held at RBGE. Frank produced a very interesting poster about the discovery on Arran of two sites of *Dryopteris pseudodisjuncta*, the fern previously identified by the late Ken Trewren at Kirkbean Glen, Kirkcudbrightshire.

Postscript: Alison Evans has now been in post for five years, and although enjoying the educational activities, feels that it is time to hand over to another enthusiastic educator to bring in fresh ideas. Peter Blake has kindly agreed to take over the role of Education Officer, subject to election at the AGM.

PUBLICITY & MARKETING OFFICER – Liz Evans

This has been a big year for me as Publicity and Marketing Officer as I have been part of a small team involved in redesigning the BPS website. We felt this was a vital part of reaching a new generation of fern enthusiasts. As we now have a vibrant and constantly growing community of followers on the existing Social Media channels, we felt it was important to keep up to date with the changing demands of an on-line audience. We now have 300 'likers' of the Fern World page on Facebook, and more than 400 followers on Twitter. I have also, through the help of other BPS members, been able to add to our on-line presence with a group on Flickr and an Instagram account – both very popular photo-sharing services. I have continued to produce the Fern World Newsletter, which is published on-line, and to update the BPS events diary. I was surprised and honoured to be jointly selected for the J.W. Dyce Award, for the publication of the Fern World Newsletter, at the last AGM. The main thing I have learned over the last twelve months is that there really are a lot of fern lovers out there, and now we are more able than ever to connect with them! If you are interested in Social Media and would like to be involved, please get in touch at: Publicity@eBPS.org.uk.

COMMITTEE APPOINTEES' REPORTS

SPORE EXCHANGE ORGANISERS – Brian & Sue Dockerill

We are pleased to report that the Spore Exchange has generally grown this year, as shown by the following statistics.

	2013	2014
No. taxa in list	374	441
No. orders received	99	115
No. packets supplied	1,548	2,015
No. first choices supplied (%)	1,276 (82%)	1,795 (89%)
No. donors	35	31

The number of donors was slightly down, but we have generated some help pages on the website that we hope will encourage more members to try it. We are very grateful to all those who take the trouble to donate – even a few taxa are very welcome.

This year we supplied The Hardy Plant Society Seed Distribution with 15 packets of each of ten different fern varieties for their list. Around 80% of these were ordered and this has encouraged us to do the same in 2015. In general, these are spores from our own garden, but, where we have large stocks, we have used other donations as well. The intention is to encourage a wider range of gardeners to grow and enjoy ferns.

We have also prepared a leaflet on growing ferns from spores, which is available on the website, at shows, or from us.

This year, we also took over the short viability spore distribution. The take-up of this scheme was disappointing, and we have therefore decided to trial freezing excess spores and including them in the annual list. Our own trials of using frozen spores have so far been inconclusive, but it is early days yet.

PLANT EXCHANGE ORGANISER – Jonathan Crowe

Donor forms were distributed with the spring mailing and the Plant Exchange List was compiled and distributed at the start of June 2014. Ten members offered plants, twice as many as last year. In all there were 114 taxa on offer, also twice as many as last year. The list was initially distributed to 20 members and then to a few more during the year from those learning of the Scheme from our website. Seven members listed plants that they were seeking. Details concerning the scheme can be found under Secretarial Notes in the *Bulletin*.

BOOKSALES ORGANISER – Frank Katzer

2014 was a relatively quiet year for BPS Booksales. The highlight was the purchase of Jack Bouckley's book collection for the Society. Despite this, Booksales made a modest surplus of £665, which will allow me to increase stock levels during 2015.

I should like to take this opportunity to thank Yvonne Golding and Bridget Laue for their help and support during the year. They have taken books to the AGM and to regional meetings, making books available to many more BPS members than I have contact with.

As usual, BPS Booksales will always welcome bequests of books or offers to purchase either individual books or whole book collections. Please keep in mind that the prices offered cannot be internet prices, but if you sell books to dealers they will not offer you sales prices either. To contact me please use my work e-mail: Frank.Katzer@moredun.ac.uk or alternatively the Booksales e-mail: Booksales@eBPS.org.uk. I can also be contacted by post: Frank Katzer, Highfield House, Muirburn, Skirling, ML12 6HL, Scotland or by phone 0044 (0)1899 860 307.

MERCHANDISE ORGANISERS – Bryan & Gill Smith

Merchandise sales declined somewhat in 2014 (approximately £1,000) compared with 2013 (approximately £1,300). There were slightly fewer mail orders in 2014, less than 30 compared to over 30 in 2013, though the number from overseas increased slightly. In 2014 they came from the UK, Belgium, Portugal, Sweden and the USA, compared with the UK, Eire, Hungary and Netherlands in 2013.

We produced the 2015 BPS calendar early in the year to try and improve on sales, and it was ready for the 2014 AGM. This paid off and there were even more selling opportunities throughout the year. The Photographic Competition held at the 2014 AGM has provided some stunning images for the 2016 calendar, which should be available in time for the 2015

AGM. We added another new item – Chelsea Physic Garden cards, which are blank cards with green fern fronds on the front from CPG's archives. These cards were bought at a good price that we were able to pass on to members. Due to popular demand, we also started re-stocking BPS tee-shirts, which were phased out when we first took on merchandise sales because of lack of demand! We also re-stocked the jute bag, this time with a new design. The *What's that fern?* low cost, colour field guide to 19 British ferns continued to sell well during the year, as did the hand lens and the FSC/BPS *Key to common ferns*.

As in previous years, the AGM was good for face-to-face sales, and in addition, the BPS stand at the RHS Tatton Show gave the Society a good opportunity to sell some items to the general public. Face-to-face selling saves members postage and packing costs. This was also possible through local regional meetings that we attended, as well as the national meeting in Brecon. Colleagues in the north sold merchandise at the Southport show, and at the AGMs of the North-West Regional Group and the Yorkshire Group. Further details of the accounts can be found in the Merchandise section of the Treasurer's report.

A big effort was made during the summer to launch merchandise sales on the new BPS website. In particular, photos of items for sale were included, as well as the advantage of being able to pay for orders through PayPal. Since then, eight orders have been received this way, and it is hoped that this option will entice people to buy more in the future.

We updated the merchandise list in April and again in July to take account of new stock and unfortunately increased postage charges. The latest list (July 2014) was distributed with the *Pteridologist* mailing, and can also be found on the BPS website. New order forms continue to be sent out whenever we fulfil mail orders. The list currently boasts a range of well over 20 items and a total of over 80 individual products.

HORTICULTURAL INFORMATION ADVISER – Matt Busby

2014 has not been a busy year for me. I had two requests from non-members concerning fern spore germination. Another query was about reliable fern nurseries, surprising considering the wealth of information now available via the internet. I was pleased to receive from an acquaintance who is not a member of the Society the remainder of a sowing of *Asplenium fontanum* that he had collected on his holiday in Europe. They were surplus to his requirements and I was very pleased to pass some on to interested members. I am always pleased to assist members with their fern problems, either by post or e-mail.

ARCHIVIST – Matt Busby

It is important that our Archive is available and accessible to all. The five-year loan agreement with Manchester Museum has come to an end, and unfortunately the Museum now needs the space for their own purposes. We are very grateful to them for holding our archive safely and enabling access to it; it was consulted by Sarah Whittingham for her book *Pteridomania*. We should like to thank Phillip Gale of the National Archive who went through everything and wrote a comprehensive report (at no cost to the BPS), which helped us when approaching other institutions.

The good news is that Liverpool Museum has agreed to house our archive, which should be moved in March 2015. For this we should like to thank Curator Donna Young, and Michael Hayward who is acting as the local BPS contact. Many thanks also to Yvonne Golding for her sterling work in securing this new location.

CULTIVAR REGISTRATION SUBCOMMITTEE – Martin Rickard

Unfortunately there has been little progress on the *Polypodium* Register. This is largely because I am currently working on a Special Publication on *Polypodium* in cultivation. This will cover a lot of new ground, making a proper register very difficult at the moment but more relevant eventually.

Another project that should soon get under way is an effort by interested members to form a group to try and agree names for cultivars of *Asplenium scolopendrium*. Many names in use are illegal and confusing. Hopefully the renewed interest in cultivars in the Society will enable this issue to be resolved. An official register would do this but it would involve a huge amount of work; it is intended that, initially at least, this group will concentrate on cultivars that are common in cultivation.

OBITUARIES

Anthony Clive Jermy

3rd July 1932 – 25th July 2014

Clive Jermy, past President and Honorary Member of the BPS and former Head of the Fern Section at the Natural History Museum, was a prolific letter writer and a list of his correspondents would read like a 'who's who' of British botany, international pteridology and plant conservation.

Tony, as his family knew him, was born in Strumpshaw, a small Norfolk village east of Norwich. During his youth he spent many hours collecting plants in the surrounding marshes and meadows and the house was always full of jars of plant specimens. He attended the City of Norwich Grammar School and during this time got to know and work with notable Norfolk botanists, Ted Ellis and Joyce Lambert. He went on to gain his BSc at University College, London and thence to Leicester University to start a PhD on *Carex*. However, National Service loomed and Clive (he had adopted his middle name to avoid confusion with other Tonys in his class) opted to serve as a teacher rather than enlist in the forces. While teaching in Kent his enthusiasm, especially in the field, inspired at least one of his students to pursue a career in botany.

In October 1958 Clive successfully applied for the job of Head of the Fern Section at the (then) British Museum (Natural History), holding this post until 1990 when the Department of Botany was reorganised and he became the first Head of Collections. Not content just to help revitalise curation, he was the inspiration and driving force behind the creation of the Museum's Wildlife Garden.

Clive followed the example of his predecessor, A.H.G. Alston, undertaking a number of long overseas collecting trips. Some of these were major scientific expeditions, which he had a talent for organising: New Guinea (six months, 1964-65), Indonesia (Java and Sulawesi in 1969-70), Trinidad (1963 and 1974), Sarawak (1976, 1978 and 1990) and Sabah (1980). He also collected in Costa Rica, Australia and Kenya, Macaronesia and many European countries as well as, of course, in the UK. On many of his main trips he joined forces with Trevor Walker of Newcastle University, who became a close friend. On later trips to Borneo he collected with Josephine Camus. In Europe he often travelled with Ronnie Viane. Clive wanted to collect more specimens than had Alston; this he achieved, reaching over 23,000 numbers as compared to Alston's 17,000+!

On one of his early collecting trips with a Museum colleague Clive was busy with his machete. Then he stopped and began to gather the plant material into bags. "I thought you were just clearing a trail", his colleague reputedly commented. Clive's reputation for bulk collecting led to his presentation on retirement of (among other gifts) a miniature combine harvester! But he was an expert collector with a good eye and his excellent herbarium collections (predominantly of ferns, but also of most other plant groups), with duplicates

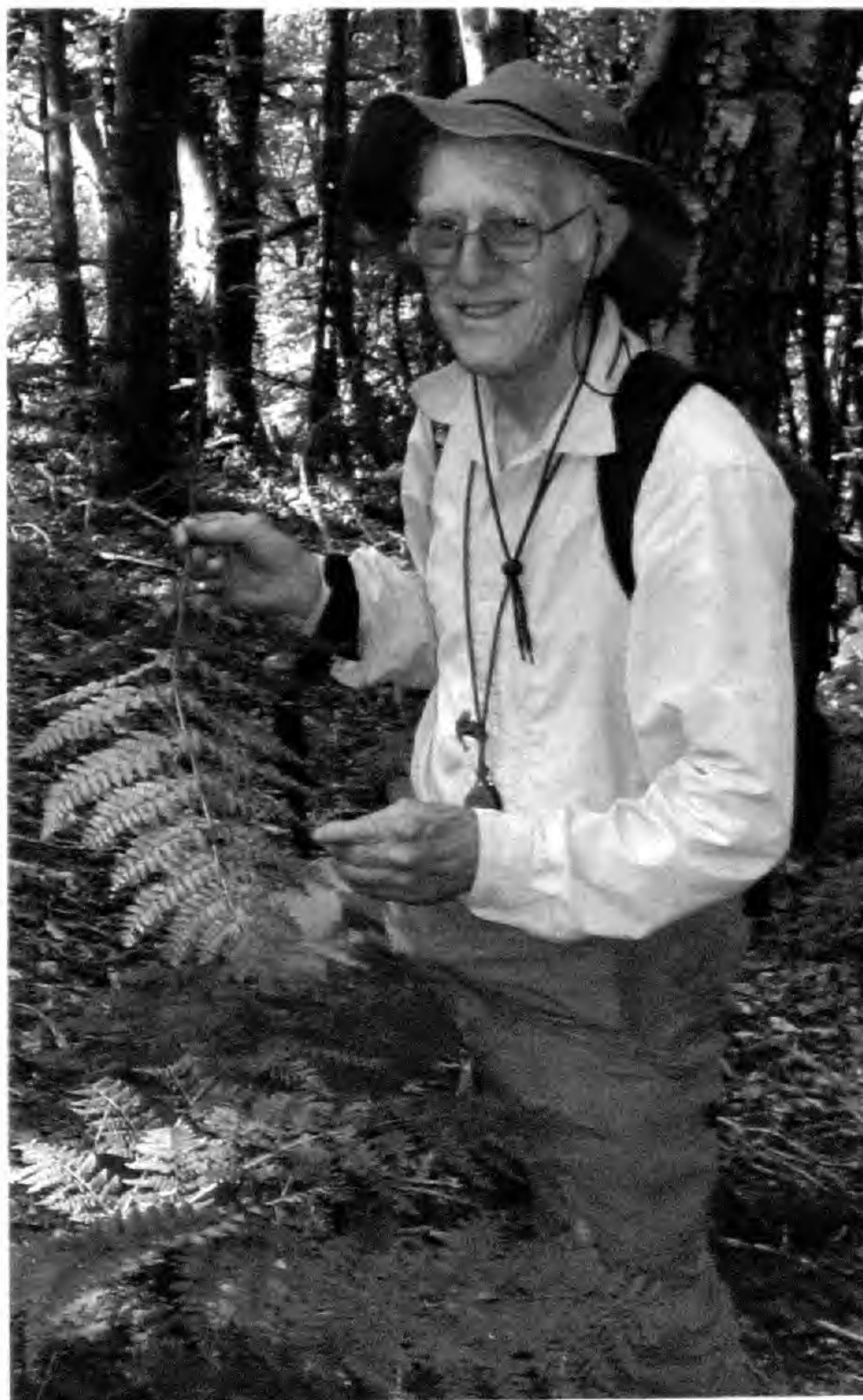


photo: A.O. Chater

Clive Jermy

with *Dryopteris dilatata* in Cwm Woods,
Aberystwyth, May 2006

distributed to other institutions, will remain a lasting tribute to him. Spores and sporelings were also collected, for cultivation either at Newcastle, or at RBG Kew where they were expertly grown on by Bert Bruty and later John Woodhams, providing a rich resource for others.

In 1980 the Royal Geographical Society awarded Clive their prestigious Murchison Award for advancement of geographical science. This was in recognition of his key role as Scientific Co-ordinator of the RGS expedition to Gunung Mulu, Sarawak in 1977-78 and publication of a successful Management Plan for the National Park; he was also the first honorary head of the RGS's Expedition Advisory Centre, a trustee of the RGS Young Explorers Trust and had long been involved with the British Schools Exploration Society and the Brathay Exploration group.

News of Clive's death sparked a flow of tributes from around the world. A common thread reinforced the fact that one of Clive's most important roles was to inspire and encourage others, be they students starting out on their careers or more established scientists. He invited many pteridologists to London where he and his wife Alma welcomed them to their home in Otford, Kent, and many life-long friendships were made. In between the science he fitted in fern garden tours with visiting botanists such as Bert Hennipman and Chris Haufler.

Clive was involved with a wide range of pteridological projects. He worked with Mary Gibby and Christopher Fraser-Jenkins on *Dryopteris* in Europe and Macaronesia, and with Hugh Corley particularly on the male fern group. He retained an interest in the *Dryopteris affinis* complex and in the 1990s he set up 'Affinis watch' with Anthony Pigott, encouraging people to send in specimens for study. He was particularly interested in *Isoetes* – Clive could often be seen wading into ponds and lakes, and he notably collaborated with Ted Schelpe on the African species and Carl Taylor on those in Europe and North America. Clive set up a survey of *Pilularia* in Britain



photo: T. Reichstein

Clive Jermy with Mary Gibby & Alison Paul (*standing*),
Josephine Camus & Anne Sleep (*seated*)
in the NHM Fern Herbarium, October 1979

and Ireland, with over 70 people contributing between 1985 and 1987. The data was transcribed and published by Plantlife in 2000. He investigated *Diphasiastrum* with Ilka Kukkonen and *Huperzia* was also of interest; he collected many specimens of the latter, predicting that in the UK there was more than one taxon.

Clive joined the BPS in 1959 and was largely responsible for raising the Society's profile across the world and increasing the scientific membership. He took over Editorship of *The British Fern Gazette* the year he joined, and turned it into a respected scientific journal. He was Editor/Senior Editor until 1975 when he changed the title to the *Fern Gazette*, a decision he later regretted, continuing in a support role until 1983. He also edited the BPS Special Publication Series from 1984 until 2002. He was President from 1982 to 1985, a Vice-President from 1987 to 1993, was awarded the Stansfield Medal in 1991 and made an Honorary Member in 2002. He encouraged Patrick Acock and Paul Ripley to start the South-East Regional Group in 1984. Clive was also a keen fern grower and as such was able to relate to BPS members whatever their interest in ferns.

Clive organised many BPS field meetings in various parts of England, Scotland, Wales and Ireland, including one in 1997 to his native Norfolk, where his local knowledge and

contacts ensured an excellent meeting. He especially loved visiting Wales and Scotland. Clive was like a mountain goat and also had great stamina; one often had to remind him that whilst *he* might not require lunch or a break, the rest of us needed to stop for sustenance!

Clive was on the organising committee of several of the Society's international fern conferences and senior editor of the resultant Proceedings: *The Phylogeny and classification of the ferns* (held jointly with the Linnean Society in 1972), the BPS Centenary symposium: *Cultivation and propagation of pteridophytes* (1991), and he co-ordinated the scientific programme of the BPS 2001 symposium: *Fern flora worldwide – threats and responses*.

Having sent out questionnaires to the world's pteridologists through the BPS and the American Fern Society, in 1973 Clive published with Joyce Holman *An international directory of Pteridologists*, a forerunner of the IAP's *Annual Review of Pteridological Research*. Clive started the International Association of Pteridologists in 1981, under the umbrella of the International Association of Plant Taxonomists. He was Chairman (1981-1987) and edited its Newsletter from 1986 to 1992. He was also one of the handful of friends who set up the Group of European Pteridologists in 1992.

Over the course of his career, Clive's publications were numerous, often resulting from his many collaborations, and covered a wide range of topics. His first significant fern publication was in the 1959 *Fern Gazette* 9(1): *A preliminary census list of British pteridophytes*. In the early 1970s he instigated a joint project between the BPS and the BSBI to produce the 1978 *Atlas of ferns of the British Isles*. The 1975 publication (with Jim Crabbe and John Mickel) *A new generic sequence for the pteridophyte herbarium* has been used in many of the world's herbaria. But perhaps best known to current BPS members is his joint work with Josephine Camus, *The illustrated field guide to ferns and allied plants of the British Isles* (1991), which developed from the very successful 1987 *BM fern crib*. It is planned to publish a list of Clive's publications in *The Fern Gazette*.

Clive was an excellent field botanist and was heavily involved in the BM Botany Department's project on the isle of Mull; this programme of fieldwork through the late 1960s culminated in publication of the *Flora of Mull* in 1978, which he edited with Jim Crabbe.

Clive joined the Botanical Society of the British Isles in 1950, serving on the Council and Publications and Conservation Committees. He was a Vice-President (1991-1995) and an Honorary Member from 1997. He instigated the series of BSBI Handbooks, writing the first one, *Sedges of the British Isles* with T.G. Tutin from Leicester, published in 1968. Second and third (considerably expanded) collaborative editions were published in 1983 and 2007.

Clive was involved in plant conservation for much of his life, having a long association with the Norfolk Naturalists Trust and Kent Trust for Nature Conservation. His broad botanical and ecological knowledge enabled him to prepare management plans of assorted habitats from lowland English fens to South-East Asian Tropical rain forests and he tutored on training courses on plant identification, ecology and impact assessment. He was at the heart of the group that formed the Conservation Association of Botanical Societies (CABS) in 1987, from which grew Plantlife, founded in 1989. He was a committee member of the Fauna and Flora Preservation Society, and co-chair with David Given of the IUCN Species Survival Commission Pteridophyte Specialist Group.

In 1992 Clive retired but continued to visit the NHM as a Scientific Associate when he could, though he had little time after moving to Herefordshire on his marriage to Valerie in 1999, two years after Alma's sad death. In December 2009 he suffered a severe stroke, a particularly cruel blow for someone known for his boundless energy. Following Valerie's unexpected death, Clive moved to a care home near Oswestry, close to his son Stuart and family. Although conversation was difficult, he still remembered people, places and ferns and he seemed content. He died peacefully on 25th July and was buried in Kent with Alma. Friends and family gathered on 12th August for a memorial thanksgiving service near Oswestry, the church bedecked with ferns and wild flowers. Our condolences go to Clive's daughter Nerida, Stuart and Liz and his grandchildren Rafael and Celeste.

Alison Paul

When Elbert (Bert) Hennipman died in August last year, he was well into the start of his fourth career.

His first career, starting in 1958, was as a lichenologist, when he took up the study of lichens under the guidance of R.A. Maas Geesteranus, at the then Rijksherbarium in Leiden. This resulted not only in a graduation 'cum laude' in 1962, but also in a finely illustrated (by Ed Vijsma) treatment of the Dutch cladonias, a work that has initiated a number of lichenologists and no small number of Dutch field ecologists to lichens. But this was not to be Bert's future.

His second career started in 1965, when he was told by C.G.G.J. van Steenis to 'do the ferns'. At the time, pteridology was not represented in Leiden, and Bert undertook his task of establishing a department of pteridology with characteristic enthusiasm. In this, he was helped by G.J. de Joncheere, a retired shipping magnate, who was introduced to ferns by Van Steenis while in Java.

The Rijksherbarium was, at the time, part of the University of Leiden, and Bert's educational qualities were quickly recognised (by some he is still remembered as one of the best biology teachers of that time), and he was asked to revise the Leiden biology curriculum.

Apart from some spin-off publications, Bert's major first contribution to pteridology was his world monograph of *Bolbitis*, for which he was awarded the Jesse M. Greenman Award of the American Botanical Society. He continued by taking up the family Polypodiaceae, at the time seriously in disarray. For this, he enlisted the help of a number of enthusiastic MSc students – Marco Roos being one. Together, they produced a systematic account of the staghorns (*Platycerium*), as well as a number of preliminary treatments on smaller genera such as *Lemmaphyllum*, *Belvisia* and *Drymoglossum*. He made major collections in northern Thailand (1966) and central Celebes (1979). By now, he was also firmly committed to new techniques such as electron microscopy, life-cycle studies and new methodologies such as Hennigian phylogenetic analysis. With a passion for teaching, he accepted a position as Professor at Utrecht University in 1980, but continued to be involved in Leiden, where he had a number of PhD students – first Peter Hovenkamp, then Monique Bosman and Gerda van Uffelen. In Utrecht, he continued his collaboration with Marco Roos, now a PhD student working on the drynarioids. The pteridological work during this period resulted in the treatment of Polypodiaceae for the *Families and genera of vascular plants*, and laid the foundation for the treatment of Polypodiaceae in *Flora Malesiana*. The list of co-authors for this flora instalment gives an idea of how many students he managed to inspire and guide. He also persuaded Ed Wiley to spend a sabbatical year in Leiden, and used this occasion to organise a number of meetings that helped spread phylogenetic methodology in the Netherlands.

This second career was cut short when Bert, after a period of infighting in the Utrecht department of biology, was forced to take early retirement in 1991. At the start of his Utrecht career, the first major round of budget cuts of the Dutch universities took place, which resulted in the closing down of the department of systematic zoology of Utrecht University. At that time the Herbarium was not threatened, also because of his recent appointment. But the ambitions of Bert to develop a modern phylogenetic approach did not always match the ideas of other members of the Herbarium, which led to a rather tense and difficult working atmosphere and the establishment of two opposing factions. The board of the faculty was not very resolute in trying to solve the problems. The second major round of university budget cuts, therefore, affected the Herbarium seriously, leading to an almost halving of the staff, especially affecting Bert's research programmes.

However, in line with his fighting spirit he did not take this as a retirement, but as the start of a third career, which again he undertook with gusto, only temporarily hampered by his Non-Hodgkin cancer, which, with the same spirit, he was able to overcome. Relieved from University duties, he could now give free rein to his entrepreneurial spirit. Together with a

number of fern growers and with Clive Jermy and Trevor Walker, he entered into a start-up (as we would now call it), with the aim of commercialising their knowledge of ferns, fern ecology and fern reproduction. This quickly expanded to include other groups of plants, and in no time, Bert was travelling the world to locate interesting material for cultivation. His approach was innovative in that he used phylogenetic evidence to focus attempts on related taxa when looking for sources for the expansion of genetic variation. He also specifically searched for plant populations growing in biotopes with physical conditions comparable to the Dutch climate. This was a departure from the way genetic diversity was generally collected in commercial circles, which was mostly by randomly picking from existing collections in gardens. He organised his own laboratory in the attic of his house and created a number of parental lines *in vitro* in order to improve the genetic variation in *Hippeastrum* cultivars. The most successful project was the introduction of genes of *Hippeastrum cybister* into the existing commercial breeder's stock, which led to a new group of cultivars with narrow-tepaloid flowers called the *Hippeastrum* Spider Group. This cultivar group is now well established in commerce.

In the meantime he did not let go of ferns, and was officer of the Nederlandse Varenvereniging (Dutch Fern Society) from 1989 to 1996. He remained a member of the British Pteridological Society until 2003, having joined in 1971. He finally relinquished ferns when he continued this entrepreneurial career in 2002 as Director of B-ware Research centre, a spin-off of the Radboud University in Nijmegen. He was instrumental in founding this company and led it as Director until 2008.

Now with time on his hands, he started a fourth career with his usual energy and drive. He took painting lessons, and the last time we (PH, GvU) met him was on the occasion of the first exposition of his paintings. These were not the usual insipid amateur paintings of someone who took up painting just as a pastime after retirement. Well-trodden paths were never Bert's way. With his eye for detail he was able to turn small bits of tree bark, twigs and other rather commonplace natural objects into bold and strikingly original paintings.

But we cannot tell where this talent would have taken him. His body, prematurely aged by his episode of chemo-treatment, finally failed him on 6th August 2014.

We celebrated his life with friends, family and colleagues on 14th August 2014.

Peter Hovenkamp, Wilbert Hetterscheid, Marco Roos, Gerda van Uffelen

A list of Bert Hennipman's publications will be published in The Fern Gazette.

Dr Frances Mary Jarrett

1931 – 2014

Frances Jarrett trained at Cambridge and then Harvard, where she produced what is still considered an excellent revision of the breadfruit genus *Artocarpus*.

Appointed at RBG Kew in 1961, she was put in charge of the then Pteridophyta Section following Francis Ballard's retirement. She had the good fortune to be able to work at Kew with Prof. R.E. Holttum who had worked as an honorary researcher there since 1952 when he retired from Singapore. He impressed on her the need to recurate the collections in line with all the advances in taxonomic understanding over the previous 30 years. This she duly did over the following ten years. With Holttum's help she quickly built up a wide knowledge of ferns, and collaborated with several specialists in new fields of research. Frances Jarrett maintained an index of all fern names published from 1961 to 1970, and in 1985 *Index Filicum – Supplementum quintum pro annis 1961-1975* by F.M. Jarrett, with the collaboration of T.A. Bence, J.W. Grimes, B.S. Parris and J.L.M. Pinner, was published. This fifth supplement to Carl Christensen's *Index* was the first to include *all* pteridophytes rather than just ferns. Latterly she became very interested in the higher level classification of ferns, and attempted to integrate and consolidate all the best data available to her.

Dr Jarrett was a BPS member from 1964 until the early 1980s. She served on the Committee for seven years and was an Assistant Editor of the *British Fern Gazette* from 1968 to 1970.

She was instrumental in much improving the first aid facilities and training facilities at Kew. Unfortunately her health declined in her late forties and she took early retirement in 1983.

Peter Edwards

Mrs Jean K. Marston

d. 2005

Many of you will have known and indeed bought ferns from Mrs Marston's nursery at her home in Nafferton, near Driffield, East Yorkshire. I visited the nursery myself back in 1998 with Frank Katzer. Once we gained entry we came away with some fine specimens. I discovered that sadly Jean Marston had died on 9th January 2005 and since she was a well-known BPS member and fern grower of note I did not want this to pass unnoticed. Also, since moving to Hull I find I now have a connection with her.

There has been a long and chequered history of fern-growing at the gardens around Thwaite Hall in Cottingham, which is now a Hull University student residence. A collection was originally put together by Dr B.T. Cromwell back in the 1920s. During the war he went to work at the research station at Auchincruive in Scotland, taking his collection with him, but brought them back to Hull University when he took up a Readership in Plant Biology after the war. In 1948 Jean Marston (Miss Jean Frodin as she was then) was appointed to develop the site in Cottingham as a University Botanic Garden. Dr Cromwell donated his fern collection and Mrs Marston continued to grow ferns from spores obtained from Cambridge, Oxford, Glasgow, Edinburgh Botanic Gardens and Chelsea Physic Garden. Prof. R.d'O. Good of Hull University had been a BPS member from 1938 and then from the 1960s to 1980s the University subscribed, Mrs Marston herself being a member from 1980 to 2002. From 1950 onwards, fern plants and spores were from time to time offered for exchange to BPS members, and later when the BPS Spore Exchange began she was able to obtain spores of many unusual species. By the 1960s Jean Marston grew a large range of ferns, including unusual adiantums, in four heated greenhouses as well as a representative collection outside. In 1978 she retired from University life but continued to run her fern nursery at Nafferton. In the early 1990s Thwaite Gardens were threatened with closure and much of the indoor plant collection was moved to Ripley Castle. But the gardens had a reprieve, and since then The Friends of Thwaite Botanic Gardens was formed and once again the site developed, including the planting of an indoor fernery in one of the glasshouses. I have now filled two glasshouses with ferns from my own collection and planted an outdoor fern bed. So once again there are ferns at Thwaite!

After Jean's death her fern nursery closed, but in 2014 a friend of Thwaite Botanic Gardens, Steve Howe, took me to visit her husband David who made me very welcome. The glasshouses at Nafferton are since gone but there are still some very fine fern specimens growing in the large garden around the house together with some of David's fine ornamental leadwork.

Yvonne Golding

IN MEMORIAM

We were also sorry to learn of the death of the following:

Dr Carl F. Chuey – an associate professor of Youngstown State University, Ohio, since 1967 and curator of the YSU herbarium. He published on the Ohio flora and especially on the state's pteridophytes. He was a BPS member from 1976 to 2007.

MEMBERSHIP LIST: ADDITIONS & AMENDMENTS

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* new members 2014, ** new members 2015, # members rejoined 2014, ## members rejoined 2015

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THE AMERICAN FERN SOCIETY

The AFS invites all readers of this *Bulletin* to join the American Fern Society. You are welcome to visit the AFS website: amerfernsoc.org. Regular members receive *Fiddlehead Forum*, a newsletter published for those who are interested in growing ferns, hunting for them and expanding their knowledge of ferns. Journal members also receive the scientific quarterly *American Fern Journal*. There is also the opportunity to exchange spores (for a small extra fee). Membership costs \$22 and \$40 per annum respectively for members residing outside USA, Canada or Mexico, including postage for airmail-assisted delivery. For particulars please write to Dr Blanca León, Plant Resources Center, University of Texas at Austin, 1 University Station, F0404, Austin, TX 78712-0471 USA (bleon.afs20@gmail.com). Online credit card payment is available via the AFS website: amerfernsoc.org.

AFS SUBSCRIPTION PAYMENTS: Our societies have an exchange arrangement whereby members of the BPS can pay their AFS subscription through the BPS Membership Secretary and *vice versa*. To take advantage of this, prospective members should contact Dr Alison Evans, Springfield House, Salterforth Road, Earby, Lancs. BB18 6NE (Membership@eBPS.org.uk).

MEETINGS PROGRAMME 2015

Meetings Secretary:	B.D. Smith
Meetings Subcommittee:	P.J. Acock, R.J. Cooke, R. Golding, Y.C. Golding, N.J. Hards, M.H. Rickard, P.H. Ripley, F.J. Rumsey
Fri. 27 - Mon. 30 Mar.	Weekend field meeting - Guernsey, Channel Islands Leader/Contact: Andrew Leonard & Tim Pyner
Sat. 11 April	AGM & Spring Indoor Meeting - Ness Botanic Gardens, Wirral Leader/Contact: Bryan Smith
May (<i>date & location tba</i>)	BPS Website training day Leader/Contact: Liz Evans
Sat. 20 - Sun. 21 June	Weekend field meeting - Rutland Leader/Contact: Rob Cooke
Sat. 11 - Sat. 18 July	Week field meeting - South-East France Leader/Contact: Jean-Luc Destombes/Pat Acock
Sat. 18 July	Day Cultivar Group meeting - Oxfordshire gardens Leader/Contact: Nick Hards
Thurs. 20 - Sun. 23 Aug.	*Southport Flower Show: BPS Stand Contact: Michael Hayward
Fri. 4 - Mon. 7 Sept.	Long Weekend field & garden meeting - Criccieth, North Wales Leader/Contact: Martin Rickard
Sat. 24 Oct.	Autumn Indoor Meeting - Glasgow Botanic Gardens Leader/Contact: Pat Acock

** Event supported by, but not organised by, the BPS.*

For further details of these meetings please see the Meetings Programme sheets sent to members with the Autumn Mailing and also available on the BPS website. For general enquiries about meetings, contact the Meetings Secretary (Meetings@eBPS.org.uk).

REGIONAL MEETINGS

These meetings are open to all members, so if you are visiting one of the following areas you would be very welcome to join in. For details of meetings please see the BPS website or contact the regional organisers by e-mail, or by post enclosing a stamped addressed envelope.

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